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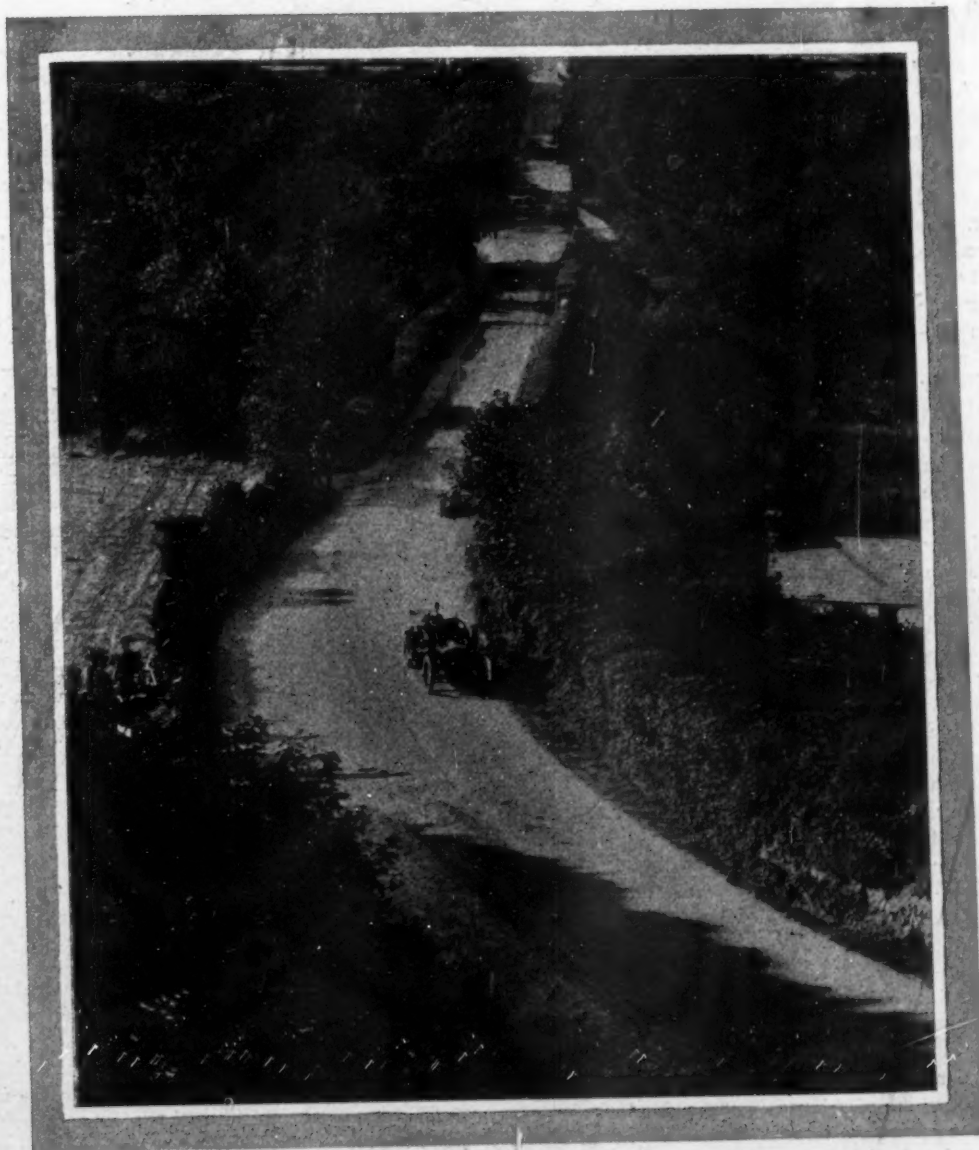
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No. 16

HOW ROLLS WON THE BRITISH TOURIST TROPHY

By JOSEPH A. MACKLE



PICTURESQUE ROAD ON TOURIST TROPHY COURSE—DESCENDING INTO KIRKMICHAEL.

DOUGLAS, ISLE OF MAN, Oct. 2.—A very high degree of efficiency, both of engine and of transmission, is surely revealed by the performance of the winner of the Tourist Trophy race: the Hon. C. S. Rolls on a 20-horsepower Rolls-Royce, who covered the 162 miles in 4 hours 6 minutes—a speed of almost 40 miles an hour—and this in spite of the fuel limitations of one gallon of gasoline for every twenty-five miles of the route.

The victory was most popular, and no competitor begrudged Rolls what has been his first win since 1899. A 22-horsepower Berliet, driven by Bablot, was second in 4 hours 32 minutes 58 seconds, and Lee Guinness, the owner of the 200-horsepower world's record-holding Darracq, steered a 15-horsepower Darracq to third position in 4 hours 42 minutes 48 seconds.

In framing the rules for the Tourist Trophy contest—the sole remaining British automobile race—the Automobile Club had in mind the limitation of engine power by the imposition of a fuel consumption limit, this being considered a more satisfactory method of barring the entry of miniature racing cars than an arbitrary limit of cylinder capacity. For last year's race the allowance of gasoline was a gallon for every 22.1-2 miles, and on this consumption the winner averaged 34 miles an hour. With the object of reducing this speed somewhat, the allowance was further reduced to a gallon for 25 miles, and yet five cars have succeeded in averaging higher than 34 miles an hour. When it is remembered that the record in the previous Gordon Bennett eliminating trials over this difficult course was but a 46-mile-an-hour average the performance of the Rolls-Royce car stands out as remarkable.

For the race 49 cars were entered, of horsepower ranging from 10 to 40, some cars being of the freak variety especially built for the race, some standard touring cars and the majority standard cars with many improvements. The alterations, in general, consisted of increase of compression to 90

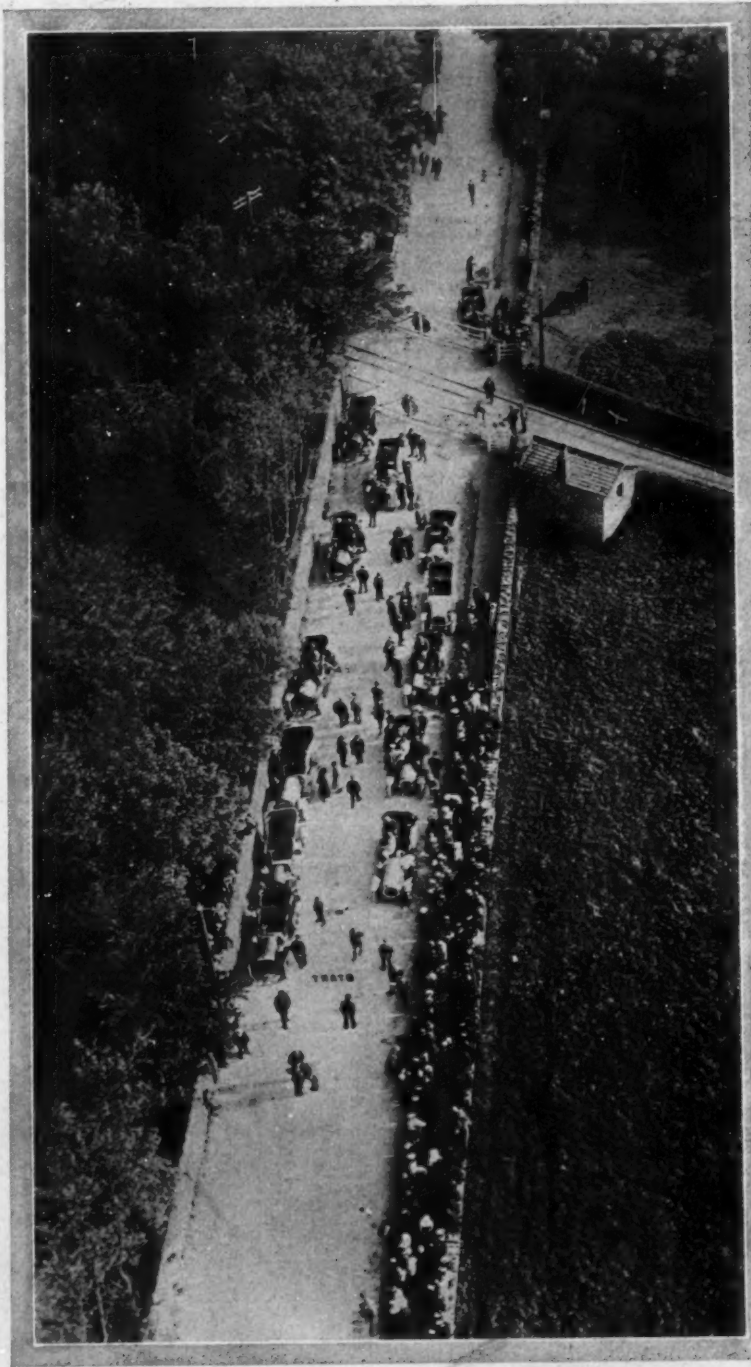
pounds per square inch, and the provision on many cars of a fourth speed, for special use on down grades. Every type of carbureter was in use, and, as might be expected, numerous were the devices adopted for lessening the consumption of gasoline, one car reverting to the old type of wick carbureter, as used on early motorcycles.

The engines were all of the four-cylinder, high-speed type, with the exception of the two-cylinder Peugeot and the Arrol Johnston, on which a four-piston, two-cylinder engine of the Gobron-Brillé type was fitted. In nearly every case the stroke exceeded the bore of the engine, bearing out the contention that a long-stroke engine gives economical results.

The proportion of chain-driven cars was about equal with that of the advocates of the shaft drive, and similarly wooden artillery wheels rivaled the wire wheels for popularity. In view of the advent of the wire wheel, however, it is interesting to note that no cases of broken wheels occurred this year, while such accidents were somewhat prevalent before. Other marked tendencies were the absence of automatic governors, the use of magnetos and the provision of powerful brakes—an essential requirement on the 40-mile circuit, which abounds in dangerous corners.

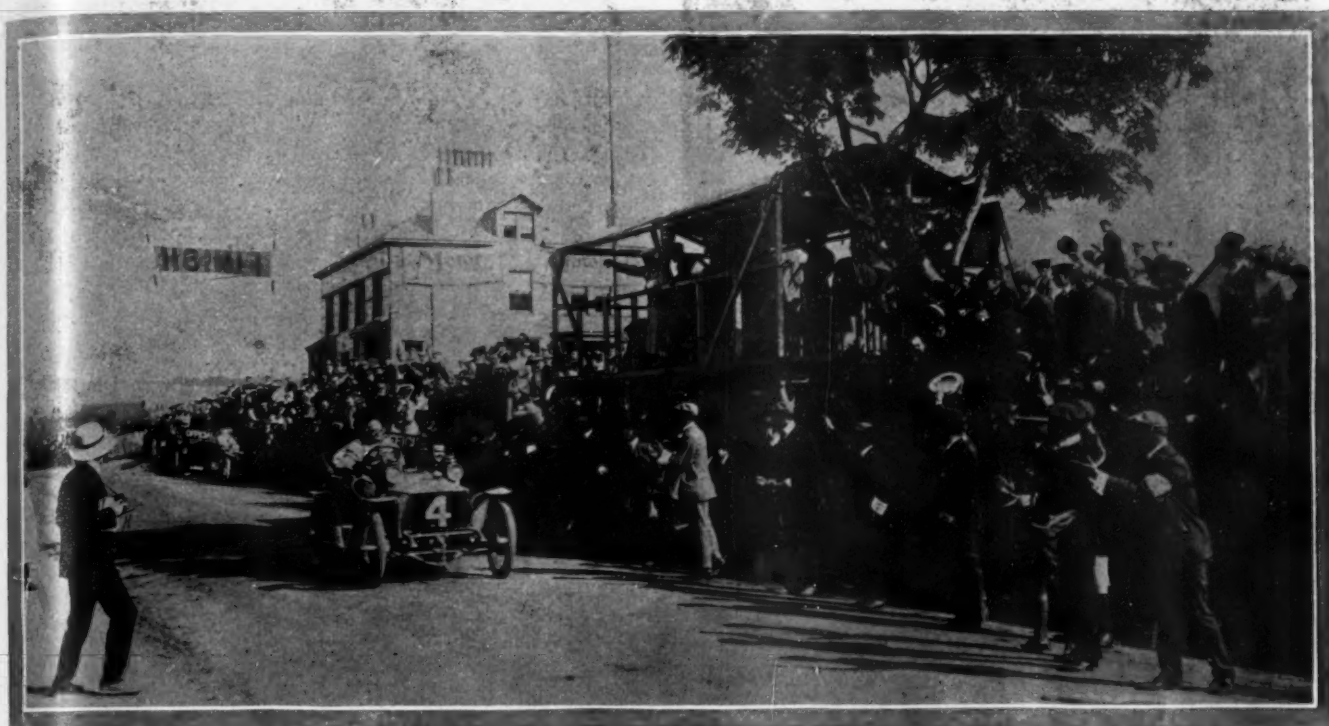
Last year a Cadillac and two Whites competed, but no American car was represented in the present race. Five White steamers, however, were in much prominence by their employment as official cars, conveying time-keepers to their posts and providing the stranded cars with gasoline at the finish of the race.

In spite of the expectation of a list of starters approaching 50 in number, a series of mishaps and disqualifications reduced the number finally to but 29. A smashup, in which the mechanic sustained severe injuries, placed one of the Deasy cars out of the contest, and one of the Rovers was driven at such a speed round a corner during a practice spin that a passenger was flung out of the tonneau and badly hurt. The car was



START OF TOURIST TROPHY RACE, ISLE OF MAN.

Bird's-eye view from the observers' captive balloon above the Automobile Club enclosure.



THE WINNING CAR, A ROLLS-ROYCE, WITH THE HON. C. S. ROLLS AT THE WHEEL, CROSSING FINISH LINE.

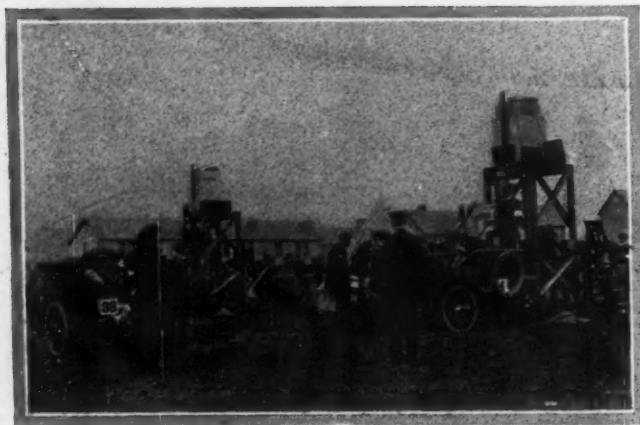
in no way damaged; in fact, the driver was at first unaware that anything had happened. Fortunately, both men are on the road to recovery, and during the race itself no further accident occurred—much to the general surprise. Five cars were withdrawn and one competitor suffered disqualification on account of infringement of the rule prohibiting Sunday practising on the course.

On Monday the favorite, Campbell-Muir's Arrol Johnston, was withdrawn, owing to a broken crankshaft, and the list of

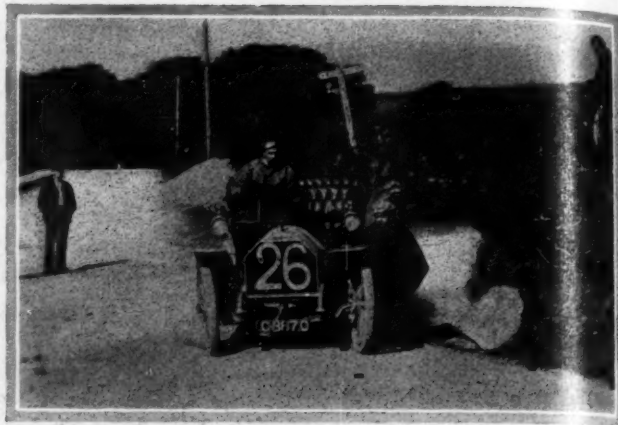
non-starters began to assume serious proportions when, on Tuesday, the club officials placed a very high value on the virtue of punctuality and refused to accept six cars which were presented late for the weighing-in—several cars being only three minutes after the appointed time. Great comment has been aroused by this somewhat drastic action, but it will probably have the desired effect of insuring punctuality at future events. Of the cars thus excluded, the Rovers were considered the fastest cars on the course, and the Metallur-



CLEMENT-TALBOT CAR MAKING THE TURN ON THE DEVIL'S ELBOW, IN TOURIST TROPHY RACE.



MEASURING OUT GASOLINE PRIOR TO THE START.



HUTTON IN BERLIET TAKING CORNER AT WILLENDEEN.

gigue also was known to stand a good chance of winning. To prevent the use of abnormally high-top gears, one of the rules required each car to cover a half mile stretch of road at a speed less than 12 miles an hour, and one of the Argyll cars, failing to perform the crawl, was disqualified. The exclusion of the Peugeot immediately afterward, on the ground that the body was not as required by the regulations, reduced the number of starters to 29. In consequence, much of the interest in the race was taken away, and, as was proved afterward, the winner had an easier victory than might otherwise have been the case.

By means of special measuring tanks the requisite allowance of gasoline was apportioned to each car, and the tank and carbureter were immediately sealed, to avoid any possibility of the addition of a further supply of fuel.

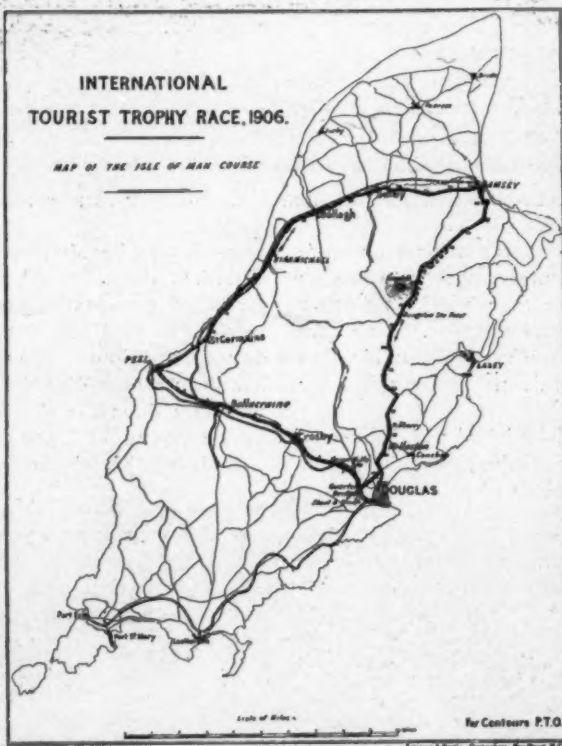
The course was somewhat changed from that on which last year's race and the Gordon Bennett trials have been held. The road leads from Douglas to Peel, then north to Ramsey, returning to Douglas over Snafell Mountain. While the road surface is good for most of the distance, many hills are encountered, and only five miles out of forty are level. The climb up Snaf-

fell involves an ascent of 1,600 feet and the course can hardly be regarded as favorable for economical fuel consumption. The whole of the course was treated with Westrumite before the day of the race, and the roads were kept clear by the aid of specially enrolled constables.

How the Cars Began the Contest.

The cars were sent off at 9 o'clock in the morning on a hill leading down to the course from the inclosure, the engines started afterward by letting the clutch in. Many of the competitors went away at a moderate speed, knowing from the results of practise spins that the only hope of finishing the course lay in reducing the average speed to 30 miles an hour or less, while others despaired of finishing on the fuel allowance and rushed away with the determination of making fast time on the first two laps. So it was that when the observers in the Dunlop balloon above the club inclosure announced the arrival of Rolls almost as soon as the last car had departed, it was felt that his chances were being thrown

away and that he could not possibly continue to cover the course of 40 1-2 miles in the time of 1 hour and 13 seconds.



GIRLING IN 15-HORSEPOWER DARRACQ AT BUNGALOW.



GRAHAM WHITE IN SIDDELEY TAKING HAIRPIN CORNER.

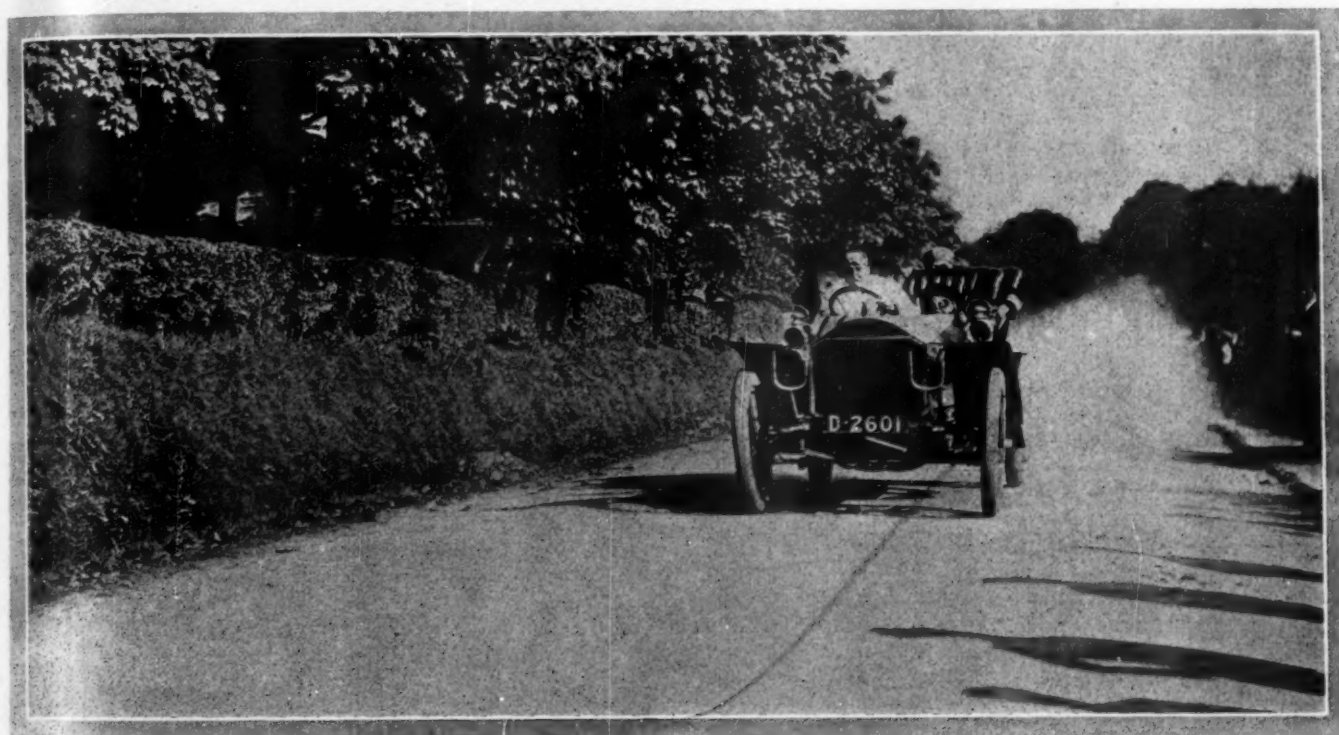
This surprising speed was eventually maintained till the end with great regularity, and the tank of the winning car was afterward found to still contain nearly a quart of gasoline. The 16-horsepower Argyll—duplicate of the car which could not be driven slow enough—finished the round in 1 hour 1 minute, and the Arrol-Johnston, driven by last year's winner, took but 1 hour 2 minutes, the longest time for the first lap being 1 hour 53 minutes. The second Rolls-Royce, which gained second position in the last contest, was announced to be withdrawn with a broken front spring, and incidentally it is instructive to note that had it not been for the string carefully wrapped round the springs in racing manner, the flaw would have been noticed before the race and the mishap might have been avoided. Two cars—the Deasy and the Swift—were in trouble with their gears, and the Minerva dropped out through clutch trouble.

Meanwhile an exciting race was in progress between the Rolls-Royce and the Arrol-Johnston which only ended after several miles by the latter sustaining several punctures, which robbed the Scottish car of all chances of victory. At the end

Berliet's time being 4 hours 32 minutes. The sensation of the last round was the performance of the Arrol Johnston, which punctured and was driven in on the rim for several miles, and yet completed the circuit in 1 hour 14 seconds, which was only beaten by the first circuit of the winner. Nine cars finished the course on the gasoline allowance, the others still in the race completing their run at various points in the fourth circuit. The second Berliet, driven by Hutton, finally came to a stop barely twenty yards from the finishing point.

After the conclusion of the race the cars which finished the course were carefully weighed and the seals examined before the placings were issued.

The particulars of the conditions governing next year's race have not yet been determined, but probably a further curtailment of the gasoline supply will be found desirable, and stringent rules will be enforced to prevent the entry of freak cars. Undoubtedly such races as the Tourist Trophy are both worthy and capable of great development, and possibly the A. C. G. B. I. may decide to promote an international race on these lines.



THE WINNING 50-HORSEPOWER NAPIER AT FULL SPEED IN THE GRAPHIC CUP RACE, ISLE OF MAN.

of the second lap the total time for the Rolls-Royce was 2 hours 1 minute, and for the Argyll 2 hours 3 minutes, and the latter might eventually have proved the winner but for a curious accident. To make up a weight equivalent to two extra passengers, ballast was provided in the shape of bags of sand, and when racing down Snaefell Mountain at a high speed the tonneau floor boards fell out and the ballast was entirely lost. Accordingly there was no course open but to disqualify the car for not carrying the stipulated weight. The car continued the race, however, and eventually finished second to the winner, though not officially placed.

How They Ended the Race.

The third round saw several unfortunate cars stopped for want of gasoline, and the Siddeley stopped with a broken chain and radius rod. Rolls continued to keep up his pace and it was seen that Arrol Johnston was hopelessly behind. Now that the Argyll was no longer a rival, close attention was paid to the Berliet, driven by Bablot, which was making better time each round. However, a slight delay to the Berliet enabled Rolls to finish unrivaled in 4 hours 6 minutes, the

NAPIER WON THE "GRAPHIC" CUP.

DOUGLAS, ISLE OF MAN, Oct. 2.—A feature of the "Irish Fort-night" on the occasion of the 1903 Gordon Bennett was the straightaway road race at Castlewellen for the *Graphic* cup, won by the British Humber car. Since then several abortive attempts have been made to run off another contest, a heavy mist preventing last year's race being held.

On the morning of September 28 the attempt was successful, and the 50-horsepower Napier of F. W. Baily covered the 4 1/4 miles of rising ground from Douglas to Santon in 4 minutes 39 seconds, thereby gaining possession of the Trophy, which is open for competition to touring cars costing less than \$5,000.

Eleven cars competed, including two Berliets, two Daimlers, an Isotta-Fraschini, a Sorex, Rapid, and S. C. A. R., the representatives of the six-cylinder faction being the 60-horsepower Humber and 50-horsepower Ariel.

The race was almost entirely robbed of spectacular interest by the cars being run singly at long intervals, and the only excitement manifested was when Hutton's big Ariel lost its water, and after a fast run came to a stop two yards from the finish.

TWO WIDEAWAKE MAYORS.

NEW LONDON, CONN., Oct. 15.—The automobile may be said to have at last "arrived" permanently in Connecticut, for (and this is the first instance so far as known) it has been made a portion of the personal platform of a gubernatorial candidate. Mayor Charles F. Thayer, who is considered by many persons rather ahead of his times, in accepting the nomination from the Democracy of the old Nutmeg state, has this to say in relation to motor cars:

"The highways . . . are still owned by the people and remain free, and the creative power working through the brain of the inventor cannot be monopolized. The automobile, if furnished good road surfaces, even with present grades, will bring its owner across the state as quickly as an express train on rails, and it only remains for the state to adopt a progressive policy with regard to its roads, to invite competition with the railways in the matter of local passenger and freight service, the natural factor in the regulation of tolls. The automobile is, and is destined to be, a great civilizer, and its development should be encouraged. Legislating to the prejudice of this new invention has not my sympathy. I would rather . . . encourage the reconstruction of our highways to meet the traction requirements of the motor vehicle and to render it at once the useful servant of our people, and the highways a mark of the higher civilization."

Quite in another direction is the attitude of another mayor, Hon. Homer S. Cummings, of Stamford, who finds that automobiles injure the macadam roads. In a message to his common council Mayor Cummings says that it costs from 15 to 25 per cent. more to maintain a macadam pavement to-day than it did three years ago, and he adds that his street superintendent entertains the same view. He says: "I think it must be admitted that the automobile has come to stay and that its destructive energies, as they affect the streets, will increase rather than diminish." To meet the situation he would "inquire into the wisdom of a gradual change of the system of road construction. Personally," he says, "I am inclined to the belief that the day of the macadam pavement for streets where automobiles are accustomed to speed is rapidly passing. Tar preparations and other methods of preserving the covering of such a pavement are makeshifts of a more or less satisfactory type." He is in favor of extending the use of vitrified brick, because on such a pavement an automobile can make no perceptible impression; and though it costs twice as much as macadam, the brick surface lasts from five to ten times as long and costs practically nothing for maintenance. Mayor Cummings recommends that the city of Stamford go into this line of improvement on a liberal scale by the issue of bonds, or do the work by installments, appropriating a certain sum each year for permanent improvements.

There is apparently wide unanimity in the views of Mayor Cummings, for the state press accepts them as though they bore the stamp of an expert, the general trend of opinion being that it would be economical for all cities to spend more money for permanent street pavements and gradually abandon macadam. New London has already made a start in this direction, using vitrified brick for the pavement of two much traveled streets, with the purpose of extending the use of the brick if the results of a year's wear are satisfactory.

VERMONT'S DOUBTFUL LEGISLATION.

MONTPELIER, VT., Oct. 10.—A bill regarding the registration and licensing of automobiles was introduced into the Legislature this afternoon by Representative Cady, of Middlebury. The bill provides that towns may prescribe what highways may be used by automobiles, the penalty for the violation of such restrictions to be not less than \$50 nor more than \$200. The bill was referred to the general committee.

THE 1907 HERKOMER RULES.

BERLIN, Oct. 5.—The Bavarian Automobile Club is already hard at work on its plans for the 1907 Herkomer competition, and again the capital city of Germany is left out of the route. It is probable that Cologne will be the scene of the start and Homburg the finishing point. One stage will probably lead from Cologne to Zwickau, and the following day Munich will be the destination. For the third day the route from Munich will pass through Kochel, Kesselberg, Zirl, Arlberg, and the stop for the night Lindau. The fourth day will include races at Forstenried, which will be the point reached from Lindau. The fifth day will be spent practically in Munich, where there will be an exhibition of cars, and the sixth day the route is scheduled to Homburg, with a wind-up over the Taunus Gordon Bennett course.

This last event is, according to present ideas, to be of a national nature, all foreign cars to be excluded, whilst non-entrants for the Herkomer Trophy will in all likelihood be permitted to take part. This is the rough outline of the program, and it is hoped that if the Taunus race is held, the Emperor will be present.

On the other hand, Professor von Herkomer, after several interviews with the Bavarian promoters at Landsberg, has embodied his wishes for alterations in the conditions to govern the forthcoming contest in the following letter, addressed to the president of the B. A. C. from Cassel:

My conditions for the Herkomer competition next year are now as follows:

1. I must be next year the sole judge of what I consider suitable touring cars. N. B.—It would be advisable to set up rules for the minimum of a given horse-power—a minimum wind area for a given horse-power.
 2. Cars with advertising inscriptions must be absolutely refused. (The Professor here refers to the fact that one or two of the vehicles competing in the last event carried the name of the makers and the tires in large letters.)
 3. Only such persons who have never in their life been paid for the driving of a car are permissible as drivers.
 4. Nothing must be left to the personal opinion of the controllers. Every stop and its duration must be noted in the book, as well as stops for refreshment, any attention given to engine, etc.
 5. No controller may ride on the same car for longer than a day.
 6. Every car which is disqualified before or during the tour must immediately be disregarded. This could be best done by immediate withdrawal of the controller and book.
 7. In order to prevent that horrible racing on the road which is so absolutely against all my intentions, I propose that every tenth or twentieth car shall be an "official vehicle," which may not be passed by any cars in its rear without special permission.
 8. Water may not be replenished during the drive, nor may there be any arrangement for such in the car, nor may the car stop to take up fresh water.
- Please remember that the primary idea which decided me to present the trophy was that of a reliability tour of touring vehicles driven by nonprofessionals.

PITTSBURG WILL USE AUTO MAIL WAGONS.

PITTSBURG, PA., Oct. 15.—Pittsburg will have automobiles for use in delivering and collecting the city mails. This was decided October 10, when Postmaster W. H. Davis, of Pittsburg, secured the consent of First Assistant Postmaster-General Hitchcock, at Washington, to try the plan. Two months ago Postmaster Davis recommended the use of automobiles as the best way to relieve the congestion of mails in the downtown district, where the old-fashioned "one man" system of delivery and collection was still in force. He found by actual figuring that one automobile could do as much work as four or more wagons, and that it would facilitate the work of the postoffice accordingly. No machines have as yet been purchased, but it is expected that they will be autos that will cost from \$2,000 to \$2,500 each, and will be provided with screens, etc., similar to the express and mail wagons. Pittsburg is the pioneer in this matter, as Baltimore and other eastern cities took no steps toward securing automobile mail deliveries until the plan had been broached several weeks in Pittsburg.

THE CUP RACE FOR NEXT YEAR?

NO one doubts but that there will be a big cup race in this country next year. Even now there is a partially defined plan on foot to provide for another trophy in case Italy—following up the precedent of last year when the Vanderbilt Cup came to America thru the declination of France to conduct the race—decides that it is entitled to the American auto prize and will hold a contest for its possession. Unquestionably there would be five American makers whose patriotism would cause them to invade Italy for the purpose of obtaining international honors, for it would not be a case of regaining these honors, since for the past three years France has annually appropriated the premier position in the battle of Long Island. The Automobile Club of France placed itself so plainly on record and stated so unequivocally that it would not hold a race in case a French car again won the Cup that it is a waste of thought to consider the possibility of the French organization changing its attitude and asking for the Cup in order to hold a race. There is no certainty—in fact, it is very doubtful—that Italy desires to take the Cup and thus obligate itself to promote a race next year.

The situation appears to be that the leading makers of the foreign countries desire to have annually in America a big automobile race in which they can participate and thus advertise their product. Even the Italian makers agree with the French manufacturers in this regard, and it is not improbable that the fourth struggle for the Vanderbilt Cup will take place in this country, and again the scene of it will be located on Long Island, where effectual work is quietly being done looking forward to the securing of a privately controlled course for high speed and other forms of automobile contests.

One by one the Europeans who came to this country for the race have been returning home, and on Wednesday the last ones left in the persons of Wagner, the happy winner; Lancia and Nazzaro, of the Italian team; Heath, of the French quintette, and A. S. Mann, the managing director of the Hotchkiss automobile interests. Elliot F. Shepard is the only one remaining, and he expects to get away in the next few days.

The October 6 race has been discussed from every point of view, and many have been the explanations as to why certain cars just failed to win the Cup. But after all the talk has subsided the fact still remains that Wagner scored a substantial victory, and one that reflected great credit on his car as well as on himself. One can hardly blame G. M. MacWilliam, the president of the Darracq interests in this country, for desiring to retain for Wagner all the glory that belonged to him. Mr. MacWilliam takes exception to the printed statement that Tracy passed Wagner on straight stretches when the latter's car was running wide open.

"This is not so," writes Mr. MacWilliam. "Tracy did pass

Wagner in the tenth round, but he did not do so until after two shoes on Wagner's car had gone bad and he was running on the rim, and the point where Tracy passed him was when he was turning into our repair station near Bull's Head while running at greatly reduced speed. The statement that Tracy passed Wagner while the latter was running at full speed is in direct variance with the facts, and there certainly cannot be any glory as the thing happened. Had it been on a straightaway with our car running at full speed it would have been different, and we would ourselves be the first to give Tracy credit for such an accomplishment if it had actually been done."

Tracy's Locomobile was one of the fastest cars in the race, made evident by his record lap, and there are those who are firmly convinced that the American driver would have been a positive factor in the finish if his tire difficulties had

not handicapped him so seriously. It is among the possibilities that the Locomobile and Darracq may meet on the Florida sands at next winter's tournament, and then the question of straightaway speed can be settled in a convincing manner.

Chairman Jefferson de Mont Thompson has been busily engaged in winding up the affairs of the 1906 Vanderbilt Cup Commission, and his report to the A. A. A. Board of Directors will give an



CHAIRMAN J. D. THOMPSON IN HIS NEW HOTCHKISS RUNABOUT, ACCOMPANIED BY A. S. MANN, MANAGING DIRECTOR OF THE HOTCHKISS AUTOMOBILE INTERESTS

idea of the immense amount of work required in the holding of one of these big road races. The expenses were necessarily extremely heavy, but, despite this fact, there will be a surplus that will be available for carrying on the general work of the national body, particularly in the line of accumulating and disseminating touring information, which feature of automobilism, in the opinion of many who have studied the subject, will some day excel and overshadow the other departments of the A. A. A. Even now the thousands are interested in touring, but apparently thousands of others are desirous of seeing the greatest sporting event of modern times, for no sight can excel the spectacle of the high-speed monsters hurtling over the roads in full flight. Unquestionably there will come a loss of interest in road racing, but for several years to come the center of the automobile stage will be more or less appropriated by the space annihilators. Therefore, it is the opinion of the leading A. A. A. officials that the organization should control the sport and see that it is handled in such manner as to invite and retain the confidence of the public. The excellent work of Chairman Thompson, according to views expressed, assures his retention of the chairmanship in case he will accept the arduous position another year. Of all the A. A. A. chairmanships, that of the Racing Board is the most exacting at present, principally because of the Cup race, and there are few capable men who can devote the necessary time to the place, which calls for rare discretion.

AN AMERICAN DIRIGIBLE.

Dr. Julian P. Thomas, of New York City, an energetic member of the Aero Club of America, is industriously at work on his new dirigible airship, which will be driven by an 8-horsepower Curtis motor. Underneath a large tent, at the corner of Eighty-sixth street and Broadway, Dr. Thomas is preparing his airship for the flight which he expects to make during the coming week. The Thomas dirigible is larger than the airship which Knabenshue used during his flights in the Metropolitan district. Its capacity is about 20,000 feet and the length of the framework 50 feet. What is known as the Holmes propeller is being tried out by Dr. Thomas, who manufactures his own hydrogen gas, and has established a very pretentious airship camp, which is attracting a great amount of attention in its vicinity. A slight accident to the engine on Monday afternoon compelled its builder to decide upon postponement of his first flight for several days to come. Dr. Thomas has accomplished many ascensions in balloons, but, like other aeronauts who consider that air navigation will have practical utility only through the dirigible ship, he is at work upon several ideas which he believes will bring substantial results. Harry S. Houpt, the New York agent for the Thomas car, made in Buffalo, is another who has an airship idea upon which he is working.

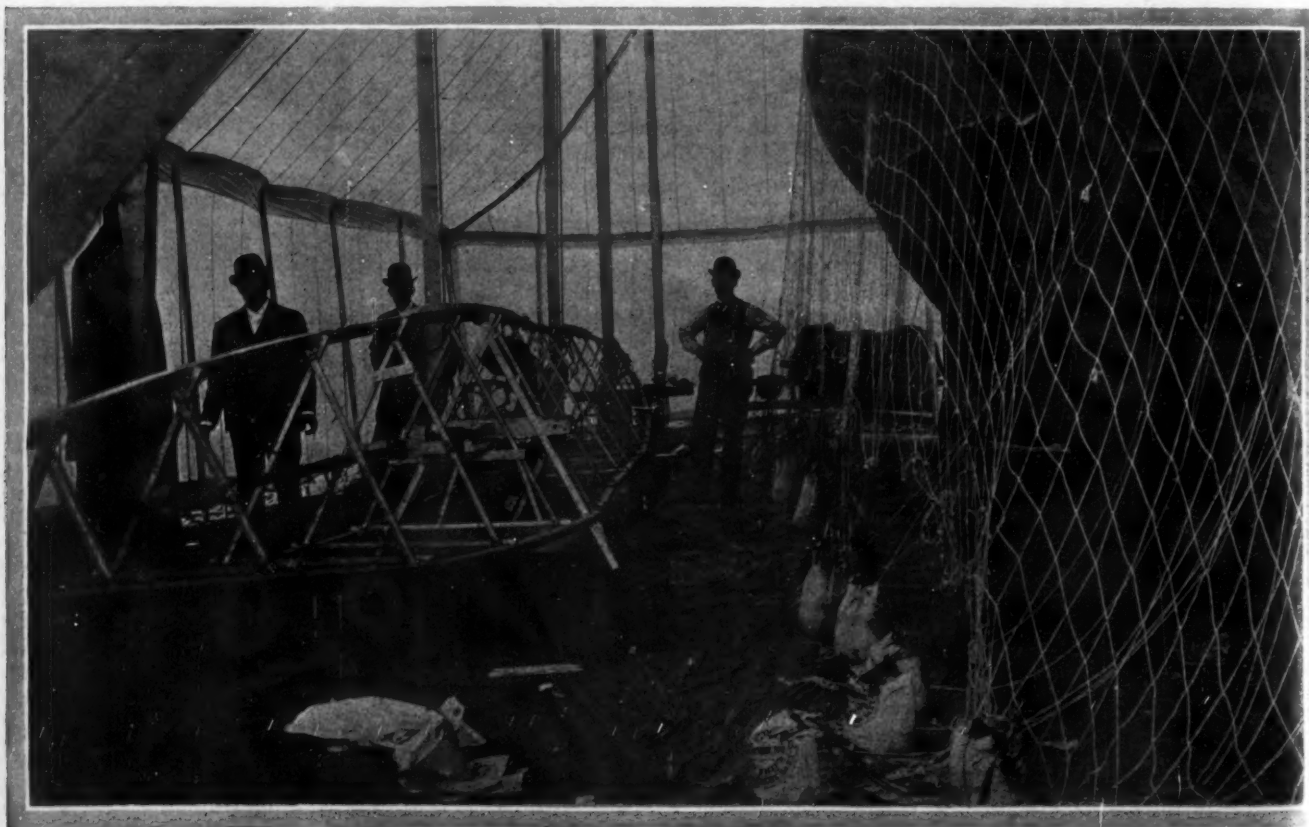


DR. THOMAS IS TRYING THE HOLMES PROPELLER

KAISER'S RACE A FAILURE.

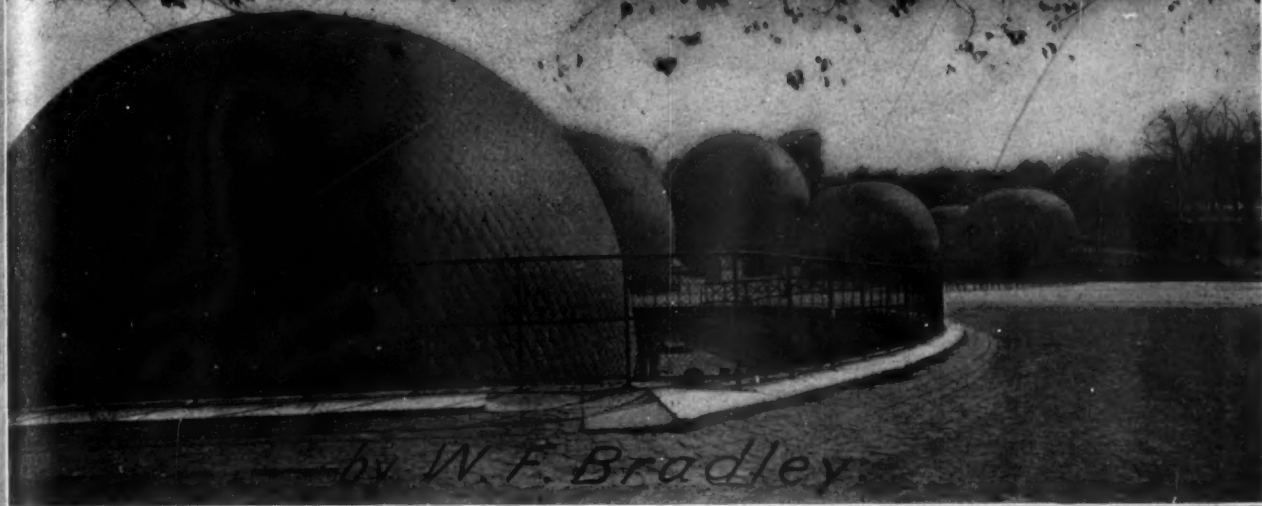
BERLIN, Oct. 16.—Of the seventeen balloons that started from Tegel, Monday, in the race for the Emperor William Cup only fourteen have been reported as landing. It appears to be certain at this moment that the *Ernst*, the smallest of the balloons, 680 cubic meters, Berlin Air Navigation Society, Dr. Brockelmann, has won the contest, as it landed at Brieg, Austria, 200 miles away. These results have been comparatively disappointing. The balloons made good progress until they reached Bohemia, where they struck a region of high barometric pressure.

The atmosphere was almost without motion, and the balloons drifted about in various directions, some of them crossing back into Germany. The airships which did this includes the *Brandenburg*, Lindenburg Aeronautic Observatory, Dr. Wegener, aeronaut, which landed near Olbernhau, in the Erz Mountains, after a journey lasting twenty-two hours. Dr. Wegener holds the German record for the longest cruise in the air, namely, fifty-two hours. The *Schwaben*, Augsburg Air Navigation Society, Capt. von Krehg, circled around Prague, drifted and landed near Lauban, Silesia. The *Dusseldorf*, the largest competitor, 2,400 cubic meters, Lower Rhine Airship Club, Lieut. Benecke, stopped near Prague, 185 miles, and the *Bezold*, Berlin Air Navigation Society, near Plauen, 150 miles



BALLOON GARAGE WHICH DR. THOMAS HAS ESTABLISHED AT EIGHTY-SIXTH STREET AND BROADWAY, NEW YORK CITY

HOW LAHM WON for the Aero Club of America



INFLATING THE BALLOONS IN THE GARDENS OF THE TUILERIES PRIOR TO THE START OF THE RACE.

PARIS, Oct. 8.—Sixteen balloons bobbed about on the first day of the month under a brilliant blue sky, gently swayed by a feeble southeasterly breeze, in the old royal Jardin des Tuileries, the former playground of kings, the modern rendezvous of up-to-date sportsmen. The occasion was the start of the long-distance balloon race known to the public as the Gordon Bennett Cup, but designated by its donator the Coup Internationale des Aeronautics. Seven nations were represented by the sixteen competitors, the powers being America, France, Great Britain, Germany, Spain, Italy and Belgium. Early on the Sunday afternoon the crowds began to get together in the Tuileries Garden, the Place de la Concorde, on the bridges and every available open space, and by 4 o'clock there was a sea of human beings rarely to be equaled, roughly estimated at 200,000. All Paris was there, of course, for the Parisian never misses a Sunday afternoon free entertainment. Among the cosmopolitan crowd were thousands who, in every European tongue, discussed the chances of the competition, the probable landing places, cotton and silk envelopes and minor details of outfit.

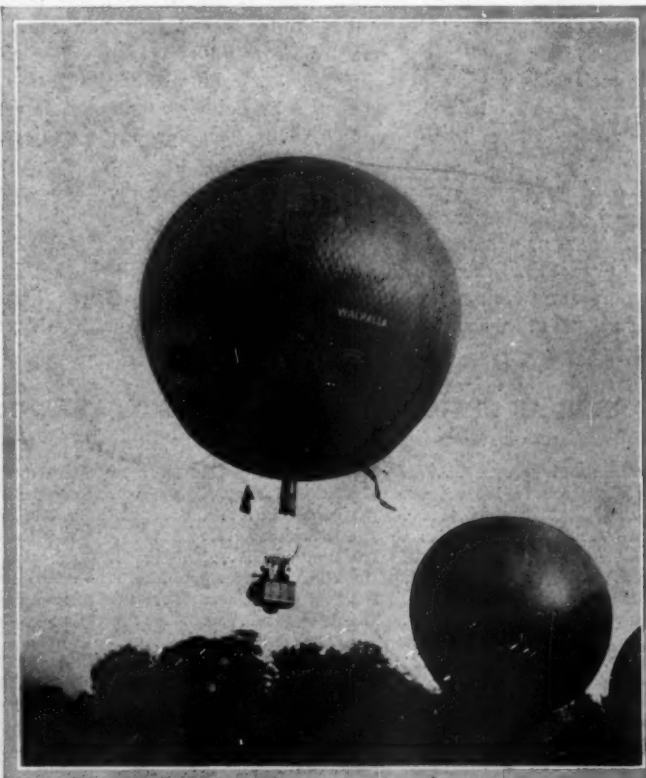
Promptly at 4 o'clock the first captive monster was dragged to the side of the lake and held by a body of gasmen and a detachment of sappers provided by the War Office in readiness for the order to start. In a few minutes "Lachez tout!" was cried and

The Elfe, with Alfred Vonwiller and an assistant on board, shot up into the air with Italy's flag fluttering in the breeze. The organization was perfect, and only five minutes had elapsed when *The Dusseldorf*, Germany's representative, started on its trip to the unknown. Another short interval and Comte de la Vaulx, the holder of the long-distance record, and France's favorite, made a poor start, having to sacrifice some of his ballast to clear the

Orangery. Cheers in English, French, German, Spanish and Italian rose from the crowd as the different aeronauts sailed.

Santos Dumont in *Les Deux Amériques* made an excellent impression. Attached to his basket was an 8-horsepower De Dion motor driving a double propeller. Immediately on the word being given the Brazilian aeronaut cranked his motor, and with the aid of his propellers rose straight up to a considerable height. A correct distance from earth being attained, the motor was stopped and the balloon went off to the west in chase of its rival.

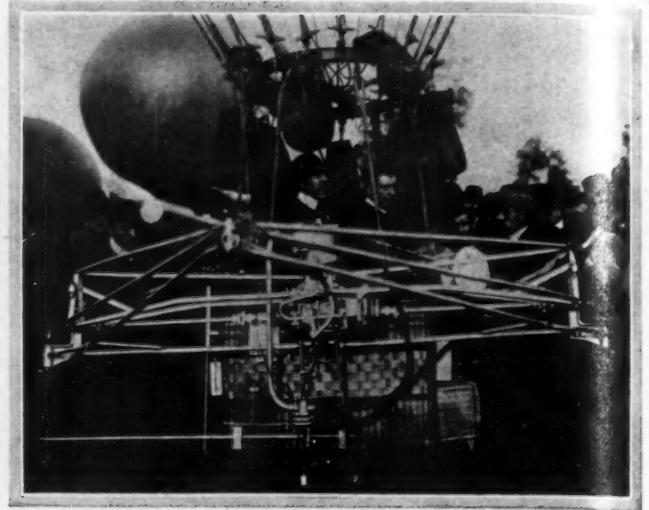
Lieut. F. P. Lahm, America's second representative, sailed majestically away in the *United States* amidst cries of "good-by" and hearty cheers from the big American contingent gathered within the grounds. Finally, just as dusk was setting in the last of the sixteen, *The Zephyr*, piloted by Professor Huntington, of England, rose into the air and closed up the line of adventurers traveling toward the west.



DEPARTURE OF COUNT DE LA VAULX IN THE WALHALLA



LIEUT. F. P. LAHM, WHO WON READY TO START.



M. SANTOS-DUMONT ABOUT TO WAVE ADIEU TO THE CROWD.

Except that the wind was unfavorable, nothing occurred to mar the day. Their natural and only motive power being from the southeast, all the balloons were driven away toward the Atlantic, and it appeared as if the cup would have to be awarded to the most daring pilot who risked a descent on the edge of the sea. Early on Monday morning Paris was early astir asking for news. It was not long in coming. Breakfast was hardly over when a telegram from Santos-Dumont announced that his journey had been brought to an end 80 miles from Paris. While regulating the motor the sleeve of his coat became engaged in some unprotected gears with the result that the aeronaut's hand was damaged and a descent was thought prudent. By noon the American representative was back in Paris still dressed in his sou'wester suit, his injured member bandaged up.

Successively reports came from Van Driesche (Belgium), 80 miles from Paris, Herr Scherle (Germany) at Dieppe, Baron Hewald (Germany) 90 miles away; F. H. Butler (England), Comte Castillon de St. Victor (France), Senor Salamanca (Spain), all three stopped by the sea at Blonville. Signor Herrera (Spain) came down near the same place, whilst Herr Abercron (Germany) traveled fifty miles further and descended rather than risk the crossing of the English Channel. Eight were missing, and from the weather reports received from outside it was thought that they had taken advantage of a change in the wind to cross over the sea into England.

This proved to be so, for after a few hours' wait reports came that Senor Kidelan (Spain) had landed at Chichester, near the Isle of Wight; Jacques Balsan, at Singleton, a short distance further inland, Comte de la Vaulx (France) further north in Norfolk county, and Signor Vonwiller, Italy's champion, still further away at New Holland, near Hull, 370 miles from Paris.

Just as the officials began to express anxiety, a telegram from Lieut. Lahm, America's pilot, announced that he had come to earth about a mile from the sea, between Scarborough and Whitby, over 400 miles from the start. All were now accounted for except Hon. C. S. Rolls, England's daring pilot, and unless he should reach a more northerly point than F. P. Lahm, the American was the winner. When Paris again closed her eyes the position of the Englishman was unknown. On awakening, however, a telegram had arrived stating that descent had been made in Norfolk near to Comte de la Vaulx's landing place.

America had won the Gordon Bennett Cup, and at the same time beaten Comte de la Vaulx's long-distance run north—Paris to Hull—by about fifty miles.

F. P. Lahm, who was accompanied by Major Hersey, landed near Robin Hood's Bay, a small fishing village built on the face of the cliff, separated from the towns of Scarborough and Whitby by wild moorland. The channel was crossed during the night, the English coast being sighted about 3:30 in the morning; the wind remained favorable and the balloon traveled north over England until 3:10 P.M., when a descent was made on the moor. A little difficulty was experienced in coming down owing to the anchor failing to engage in the dry, barren earth. Major Hersey, Lieut. Lahm's companion, is associated with Mr. Wellman in the North Pole expedition project.

It is very probable that America will be asked to start next year's Gordon Bennett balloon race from Paris in order to obtain a larger number of entries.

The Aero Club de France has sent a cable to the Aero Club of America, setting forth the challenge of the club for a second race in America. Three French balloons will be entered, the pilots for which have been chosen.

RESULTS OF THE RACE AS OFFICIALLY DECLARED AT PARIS, OCTOBER 13, 1906.

NAME	COUNTRY	BALLOON	WHERE LANDED	MILES
F. P. Lahm.....	America.....	The United States.....	Scarborough, England.....	415
Signor Vonwiller.....	Italy.....	The Elfe.....	Near Hull, England.....	370
C. S. Rolls.....	Great Britain.....	The Britannia.....	Norfolk, England.....	248
Comte de la Vaulx.....	France.....	The Walhalla.....	Walsingham, England.....	350
Senor Kidelan.....	Spain.....	The Montana.....	Chichester, England.....	385
M. Jacques Balsan.....	France.....	The Ville de Chateauroux.....	Singleton, England.....	300
Professor Huntington.....	Great Britain.....	The Zephyr.....	Milton, England.....	330
Senor Herrera.....	Spain.....	The Ay-Ay-Ay.....	Dives-sur-Mer, France.....	305
Herr Abercron.....	Germany.....	The Dusseldorf.....	Villers-sur-Mer, France.....	300
Comte de Saint Victor.....	France.....	The Poehn.....	Blonville, France.....	315
F. H. Butler.....	Great Britain.....	The City of London.....	Blonville, France.....	315
Senor Salamanca.....	Spain.....	The Norte.....	Blonville, France.....	315
Baron von Hewald.....	Germany.....	The Pommern.....	Conde-sur-Risle, France.....	300
M. Santos Dumont.....	America.....	Les Deux Aueriques.....	Brogie, France.....	30
M. Van Den Driesche.....	Belgium.....	The Ojouki.....	Bretigny, France.....	30
Herr Scherle.....	Germany.....	The Schwaben.....	Dieppe, France.....	35

THE PROBLEM OF DENATURING ALCOHOL

By THOMAS L. WHITE

It is the misfortune of alcohol, compared with other fuels, that it is fiscally mortgaged as a source of revenue and ethically compromised as an intoxicating beverage. Whether the original impost on it was levied in the interests of morality, or whether, which is more probable, legislators had a single eye to the necessary dollar matters very little. What is important is that, owing to its taxation in every civilized country, the industrial use of alcohol to-day is handicapped by difficulties and dangers of a purely adventitious character, which are foreign alike to its properties as a chemical compound and to the natural conditions which might, but do not, determine the manner and extent of its production. These difficulties may be said to comprise the chemical problem of a suitable denaturant, the expense of the process of denaturation and the character of the regulations for denaturing imposed by the Government on the manufacturer. The dangers are that the natural qualities of the alcohol may be impaired by the denaturant, that the cost of the process of denaturing may constitute a prohibitive indirect tax on the product, and that the restrictions enforced may be so irksome in their nature as to seriously interfere with production. That these are real and not academic dangers is plainly proved by the general character of the evidence tendered before the committee which sat in Paris in 1903 and which reviewed the whole question of the use of industrial alcohol; in fact, although two commissions have been appointed in France to look into and report on the problem of denaturing alcohol, one in 1894 and one comparatively recently, the French Government is offering at the present moment a prize of 4,000 francs for the discovery of a satisfactory denaturant.

Losses Due to Denaturing.

When the meat inspection bill was being debated in Congress, the main subject of contention between the promoters of the measure and the packers related to the incidence of the cost of inspection. A similar issue in an indirect form presents itself in connection with the compulsory denaturation of alcohol. As at present conducted in France, this operation occupies from eight to twenty-one days and involves a dead loss by ullage and evaporation of 3 per cent. of the gross amount of alcohol treated, and the question arises whether this loss is to be borne by the manufacturer or the Government.

It seems to the writer that since the whole aim and end of denaturing industrial alcohol is to protect the internal revenue, it is clearly incumbent on the Federal authorities to meet all costs incidental to such protection, whether such costs be of the nature of a direct charge, like the expenses of inspection, or whether they be of an indirect character, as in the case we are considering. If to the 3 per cent. ullage and evaporation loss we add the interest on the money tied up in the alcohol which is being treated and the wages of employes engaged in treating it, we may conservatively estimate the indirect tax on the alcohol industry entailed by denaturation and government inspection at 5 per cent. of the gross product, and this is an impost which a young industry can ill afford to carry. Of course an advance in the art of denaturing in the direction of the discovery of quicker methods would afford some relief, but the experience of our European neighbors in this respect is not very encouraging.

Selecting a Denaturant.

The choice of a substance suitable in all respects for the denaturation of alcohol destined to be burned in an explosion motor must in the nature of the case involve a compromise, for if a denaturant could be found as cheap as alcohol and of equal fuel value, it would, other things equal, replace alcohol altogether. On the other hand, there are fuels which are unsuited for some reason for use in the pure state, but which would make excellent denaturants. In any case it must be remembered that the term

"fuel value" is relative to existing conditions, such as the prevalent type of motor in use, and if alcohol be considered to differ from existing fuels to such an extent as to demand a radical change in motor design, which it undoubtedly does in the matter of compression, it would be sound policy to choose as a denaturing substance some compound which had a tendency to bring the chemical and physical character of alcohol into line with those of gasoline. Such a choice would have the advantage of meeting the actual situation, and when the consumption of alcohol became sufficiently general to encourage the construction of motors especially designed for its use, corresponding changes in the character of the denaturant would follow as a matter of course.

There is a practice, not unknown to corporation lawyers, when the interests of their clients are threatened, which consists in interpolating in the text of an obnoxious measure an innocent looking clause, which is termed a "joker" and which serves the purpose of a legal snag when the bill it adorns becomes law. Without imparting motives where there is no evidence of their existence, it cannot be too emphatically brought home to the attention of automobile owners that nothing could be easier than to render the exemption of alcohol as a motor fuel a farce by the introduction into the regulations for denaturing it of a "joker" clause whose significance would probably only become apparent when too late. For example, suppose that it be recommended by the Commission, which is now engaged in framing those regulations, that commercial alcohol shall be denatured by the addition of a large percentage of wood spirit. Sound reasons could undoubtedly be adduced for such a recommendation, and it might be made with the best intentions and in perfect good faith by the commissioners; but it is facts that count, not intentions, and a little figuring will quickly show that with wood spirit (methyl alcohol) at 60 cents, ordinary (ethyl) alcohol at 12 cents and gasoline at 15 cents the use of anything over 6 per cent. of wood spirit as a denaturant would simply put alcohol out of the running as a motor fuel.

Disadvantages of Methyl Alcohol.

The fact is that the problem of putting exempt alcohol on the market on a paying basis is a more difficult one in this country than elsewhere. In Europe gasoline is a heavily taxed import; in America it is an indigenous product, and that alcohol may make its way as a competing fuel it is necessary not only that its cost of production be low, but that the denaturant used be cheap. In view of this necessity and of the high price of methyl alcohol, it looks as though the almost universal European practice of using this material for denaturing purposes were unsuited to American conditions. Nor is its price the only objection to methyl alcohol as a denaturant. It is very poor in heat-producing qualities and its combustion in a motor is attended by the formation of formic aldehyde, a corrosive substance, very injurious in its action on steel and iron; in fact, the French law of 1894, which required the addition of 15 gallons of it to every 100 gallons of natural alcohol, came near putting the alcohol motor out of business altogether, for in 1904 it was stated by a well-known French manufacturer that of 60,000 carbureters sold annually by him, only 500 were intended for use with alcohol, and elsewhere 100 petroleum or gas motors were sold for one alcohol motor. The reasons assigned by him were (1) high cost, (2) excessive consumption, (3) oxidization—clearly the necessary corollaries of the costliness, low calorific and corrosive combustion of the 15 per cent. of methyl alcohol. And if these things be done in green, what shall be done in the dry? If this is the result of using methyl alcohol as a denaturant in a country where the production of alcohol is fostered and gasoline is heavily taxed, what is likely to happen in America, where the advantage is all the other way?

And while it must be admitted that the tendency of modern practice is to greatly reduce the quantity of methyl spirit used, generically the objections to its employment remain, even when it is added in such small quantities as 1 per cent.

Methyl Alcohol as a Denaturant.

The persistence in the general use of methyl alcohol as a denaturant, in spite of its drawbacks as a motor fuel, is really due to the truth that the denaturation of commercial alcohol is a wider problem than the use of alcohol in explosion motors. Exempt alcohol has a large number of industrial applications, and the radical advantage of methyl spirit as a denaturant lies in the fact that when once ethyl (ordinary) alcohol is impregnated with it, no process known to science can effect its rectification. This has undoubtedly led to a tendency in responsible quarters to make alcohol once and for all undrinkable, so that the expense of guarding against illicit rectification is avoided, and to leave the various industries using it—the motor industry among others—to solve their respective technical problems as best they may. Of course there are other materials than methyl alcohol which largely answer the same purpose, but having in view the various uses of industrial alcohol and the more or less conflicting *desiderata* in a denaturant rising out of them, methyl alcohol is the compound which most nearly meets the average of what is demanded. It is the best compromise, if we accept the Government attitude that one denaturant must suffice except in special cases, like that arising out of the manufacture of vinegar, and the only line of escape seems to be to claim for the motor interest a similar special treatment and to take the position that the growing importance of the automobile industry demands that alcohol destined as a motor fuel shall be denatured with a view to the requirements of the explosion motor only. Any departure from this attitude means a sacrifice in some form or another. Thus, so far as the choice of a denaturant is concerned, it would at first sight seem immaterial whether the denatured article were burned internally as in a motor or externally as under a boiler. But a denaturant which increased the radiant quality of the alcohol flame would be a disadvantage in the first case and an advantage in the second. Or, to take another instance, among the qualities of a denaturant which would recommend its use in a motor, that of accelerating the inflammation rate of the alcohol would rank high, and this is a matter of no importance whatever where alcohol is burned in the open atmosphere.

Classification of Denaturants.

The more one looks into the idea of making the denaturation of alcohol for fuel purposes a *selective problem*, the better it seems; and, after all, what is there to be said against it? If we review the many purposes to which alcohol is industrially applicable, we shall come across many cases in which denaturation by such organileptic substances as methyl alcohol, bone oil, anilin, pyridin and the like is inadmissible and where a suitable denaturant has been substituted. To adopt a modified French classification, apart from the generation of heat, light and motive power, the industries in which alcohol is used fall naturally into three classes:

(1) Industries in which the alcohol serves as a base and in which it is chemically transformed into a new product. Fulminate, vinegar, ether, chloroform, iodoform and chloral are instances of such products.

(2) Industries in which the alcohol serves as a temporary vehicle or carrier. The extraction of alcoloids, the manufacture of artificial silk and the preparation of smokeless gunpowder will serve as examples of this class.

(3) Industries in which the alcohol functions as a permanent solvent for varnishes, perfumes, collodions, camphor and the like.

And the variety in the denaturant is just as wide. Thus in making iodoform, acetone is the denaturant used; in making chloroform, celluloid and photographic films, it is a solution of pyroxil in ether; in making chloral it is chlorine; in making ether it is sulphuric acid; in making fulminate it is methyl, and so on,

even the familiar whiskey-jack having its appropriate denaturant in the form of salt and water. Surely, in the light of such variety, it should be a simple practical matter to denaturate alcohol which is to be burnt to suit the conditions under which the combustion must be conducted, so that alcohol for motors, alcohol for lamps and alcohol for heating will each contain such substances as are calculated to make, in each case, for efficiency.

Conditions to Be Desired.

And, finally, such an arrangement would facilitate the selection of a denaturant by eliminating the necessity of reconciling conflicting requirements. Thus, while any denatured alcohol should have a distinctive taste and smell and be easily recognizable by these qualities, the possible use of such a product in dwellings would indicate a non-poisonous denaturant whose odor was not too pronounced. If the same denaturant had to do duty in all cases, this limitation would exclude the use of a material which, so far as motors are concerned, might be an ideal denaturant in every way. On the other hand, if alcohol for domestic use were denatured in one way and alcohol for motors in another, such a conflict of requirements could never arise.

To sum the matter up, while alcohol can be produced from any vegetable material containing sugar or starch, at a price so low in some cases as ten cents a gallon, in order that it may be able to hold its own as a motor fuel in the open market, the cost of denaturation must not be wholly thrown on the manufacturer and he must be allowed, with a proper regard to the protection of the revenue, to make an alcohol denatured with such compounds as are calculated to supplement, increase or remedy the natural qualities of alcohol considered solely in the light of a fuel for explosion motors. It is also important that any denaturants whose use is made compulsory by law should be unrestricted in output and cheap in price.

IMPORTANCE OF KEEPING CHAINS CLEAN.

Much of the disfavor of the chain drive in public estimation is attributable to the fact that chains have been left to look after themselves, according to the *Motor World*, of Glasgow, Scotland. Years ago a gentleman named Carter investigated as to why chains wore out so quickly upon pedal bicycles. This was the era of block chains, and the present day half-inch-pitch roller chain had not been introduced. Mr. Carter patented what was known as a gearcase, which was properly a chaincase, in which the chain and the two chain wheels were entirely enclosed, and it was possible to adjust the chain by means of slides and without detaching any part of the case. On only two cars has this excellent system been adopted, on which the chains are entirely inclosed in metal sheaths, which also cover up the chain wheels. These sheaths are oil-tight and dust-excluding, and the chains can be running constantly in oil. We believe both makers of the cars have patents on the method of making and fitting these cases so as to allow for the variation of movement set up by the springs.

Owners of the ordinary pattern of chain-driven cars find the chains a source of considerable trouble, and that they wear quickly. This is in no way the fault of the chain makers, as modern roller chains have been brought to a high state of perfection. The trouble is due rather to running unprotected chains, which get smothered with mud in winter and simply grind themselves away with the summer's dust. Soaking the chains in a bath of hot tallow and graphite is but a temporary expedient and necessitates removal of the chains and cleaning them thoroughly beforehand with kerosene. The job is one not to be lightly undertaken—it is a dirty and messy one at best—and, moreover, if the chains are run, as they ought to be, at a proper tension, the adjustment rods and brake connections have to be loosened for removal and tightened up again upon refitting.

Scientific tests have proven that clean and well-lubricated chains and chain wheels will convey over 90 per cent. of the power transmitted to them, and it is necessary, therefore, to look well after the chain to maintain this high efficiency.

LUBRICATION SYSTEMS FOR AUTOMOBILES

LUBRICATION is of more importance to an internal combustion motor than to almost any other piece of mechanism. It is true that all running machinery needs lubrication, just as does the gasoline motor; but most mechanisms will suffer but little if the wrong kind of oil is used, if there is too much or too little, or even if the supply is temporarily stopped. Not so, however, with the gasoline motor. Lubrication is absolutely essential to its working—and the lubrication must be arranged so that the right quantity of oil will be delivered to the right place, and not too much of it. Too much oil will mean fouled plugs, smoky exhaust and carbon deposits on the piston head and cylinder walls, and carbon deposit in sufficient quantity means preignition from incandescent particles of the carbon setting off the fresh charge of gas prematurely. Excessive carbon deposit may even decrease the clearance space in the top of the cylinder to such an extent as to cause ignition by the high temperature of the over-compressed charge, and consequent pounding of the engine and lack of obedience to the action of the timer. The engine under these circumstances will often refuse to

but also in between the piston rings interfering with their free movement, and so causing leakage. This is a cause of faulty compression that is often overlooked. Any oil will burn if fed into the cylinders in excessive quantities, as it runs down on the piston head and is subjected to intense heat while removed from the cooling influence of the water jacket or the radiating flanges of an air-cooled engine, as the case may be. Some oils leave a greater amount of carbon deposit than others, and some, of course, will stand much less heat than others of better quality.

Special Oils for Automobile Motors.

Ordinary gas engine oil, such as is used for stationary internal combustion engines, is not usually as suitable for automobile work as the special oils made for the purpose. Stationary engines are usually run at a comparatively low speed, under favorable conditions for lubrication, and their temperature is constant while working and usually a good deal lower than the temperature of an automobile engine. Thus the oil that may be the best for a stationary engine is not usually suited to the more severe duty of lubricating an automobile motor. In fact, so much depends upon the adaptability of the oil to its work that the better class of oil refiners make special oils for the various types of automobile engines, and, after having made careful tests, are prepared to give the automobilist the kind of oil that will give the best results when used in his particular make of motor.

The oil used for lubricating the crankshaft bearings, the crankpins, the piston pins, camshaft bearings and other frictional surfaces about the engine, is commonly the same as is used for the cylinders, as the cylinder oil answers the purpose very well, and it is much easier to use one kind of oil for the whole engine than to arrange for different oils for different parts. In fact, nothing would be gained by such an arrangement, except the ability to use a cheaper oil for some parts—an insignificant point. For the change-speed gears, however, it is usual to employ a heavy oil of a special kind, or else grease. The same is true of the bevel gear-driving mechanism from the rear of the gearcase to the countershaft or the live rear axle, as the case may be. Sometimes the same oil is used throughout the car, being fed from a single distributing oiler, this forming a convenient method of lubrication.

Bearings that cannot conveniently be lubricated in other ways are frequently fitted with grease cups. These are, as the name indicates, cups containing grease which is too heavy to flow, but will soften with the heat of the running journal and run down. Or else the cover of the cup is arranged to screw down and force the grease into the bearing, in which case the cup is known as a compression grease cup. Sometimes a piston or plunger forces the grease through the ducts, the plunger being moved by a screw passing through the cover of the cup. Graphite is often mixed with grease with excellent results. Owing to its affinity for cast iron, graphite is often used for lubricating cast iron surfaces; it spreads over the surface in a thin, smooth layer and fills up the microscopic irregularities that cause friction. Graphite, mixed with cylinder oil, is frequently used for the lubrication of gasoline engine cylinders; the results obtained depend largely upon the proper use of the graphite, but when properly used the results are often very satisfactory.

Methods of Applying Lubrication.

Methods of getting the oil to the surfaces to be lubricated in the engine vary a good deal. The simplest arrangement, and one that is very often used either alone or in combination with other methods, is the splash system. A quantity of

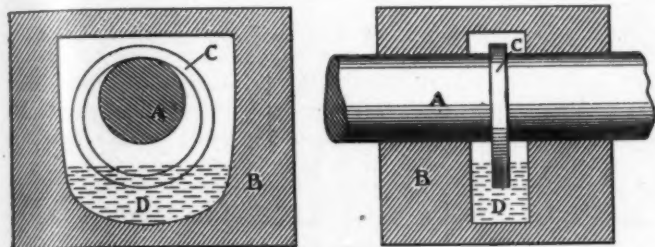


DIAGRAM SHOWING PRINCIPLE OF RING OILER.

A, shaft. B, bearing in which shaft turns. C, oil ring. D, oil in oil cellar or pocket. A cover not shown gives access to the bearing.

stop when the ignition current is cut off, but will continue to run by virtue of the hot carbon ignition until the gasoline supply is interrupted. On the other hand, lack of sufficient oil will produce even worse results, inasmuch as the engine may be permanently damaged by the scoring of the cylinder, the cutting and excessive wear of the bearings, and so on. An internal combustion motor will not work satisfactorily with "any old oil," but requires a highly specialized lubricant that will withstand the intense heat of the explosions in the cylinder—heat that would consume the ordinary machine oils almost as quickly as the gasoline itself. Gas engine oil must also have what is called "body"—it must retain sufficient viscosity under the thinning influence of heat to properly lubricate; for oil that is very thick and heavy at ordinary atmospheric temperatures becomes thin and almost watery under the great heat of the combustion chamber. If the oil becomes too thin it will not lubricate properly, its effect being like that of, say, kerosene on cold friction surfaces.

The oil flowing into the minute crevices between the piston rings and their grooves, and between the piston and cylinder walls, has much to do with the ability of the piston to hold the compression, especially if the piston, rings and cylinder are somewhat worn. In fact, most engines that have been run for a while will hold compression indifferently without oil, and this can be noted by any owner of an engine who will thoroughly clean out all oil with kerosene or gasoline and crank the engine without lubrication. It will usually be found that the charge will leak out very much faster than when there is plenty of oil in the cylinder.

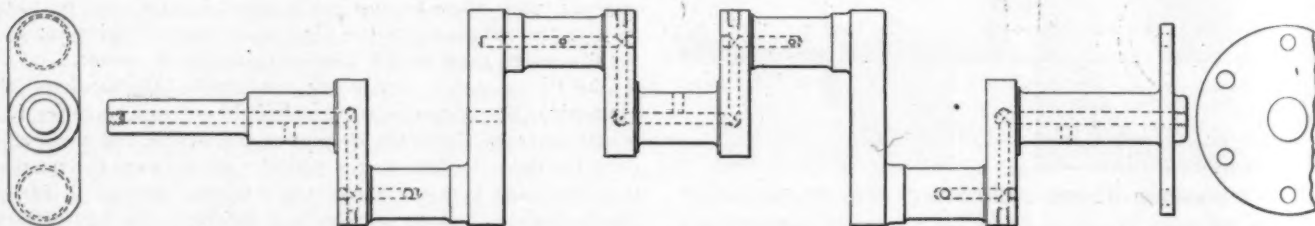
Oil that is readily burned will not only deposit carbon and gum on the cylinder walls and piston head and spark plug,

oil is placed in the crankcase of the engine, the depth being such that the lower end of the connecting rod will dip into it at every revolution and splash the oil all over the interior of the engine. The word "splash" is rather misleading in this connection, for at the high speeds normal to the engines under consideration, the oil is whirled into a fine spray or mist, which penetrates to every part of the engine. For small high-speed engines, such as are used on motorcycles, this system seems to give entirely satisfactory results if the proper grade of oil is used and the quantity in the crankcase is right—an important point. Oil holes are usually drilled to carry the lubricant down onto the piston pin and crankpin. After running for a certain length of time the oil in the case must be drained out and a fresh supply put in, as the oil gradually loses its lubricating qualities.

In larger engines, where the splash system is used, it is often found difficult to get the oil into the crankpin and piston-pin bearings in sufficient quantities to provide a margin of safety. To make sure that the oil is forced to these points, a small scoop or open-ended tube is often placed in the lower end of the connecting rod, bent so that the open end points in the direction of rotation, while the other end communicates with a passage leading to the crankpin, and, by way of another pipe running along the connecting rod, with the piston-pin bearing. The oil is sent into these passages with considerable force, owing to the speed of the rotation. A small check valve sometimes prevents the escape of oil back through the tube or scoop, the lubricant being sent

the end and center bearings. Holes lead from the passages to the surfaces of the crankpins, being drilled radially exactly as in the case of the center bearings. The holes in the ends of the shaft are closed at their outer ends by screw plugs. Now, suppose the engine is running and the lubricator, which forces oil to the bearings under pressure, is working. Oil will be forced to the main bearings, and every time the holes in the crankshaft come opposite the oil-feed holes a certain amount of oil will be forced into the passages in the crankshaft, and along the passages to the crankpins. During the time that the oil holes in the main bearings are not registering, the oil is being fed to the bearings themselves. This system is sometimes extended to include the piston pins by carrying oil up through the connecting rods, or through pipes, to the piston pins, the holes in the crankpins registering with the passages leading to the piston pins, just as the oil-feed holes register with the passages in the crankshaft. The excess of oil drips down into the bottom of the crankcase, where there is sometimes a little well to receive it and a drain-cock to run off the old oil. The cylinders are lubricated by separate feeds.

In another system the oil fed to the cylinder is carried through the hollow piston pin, through the connecting rod and down to the crankpin; or else the cranks dip into oil in the crankcase, and so obtain their lubrication. Sometimes the main bearings are oiled by ring oilers or chain oilers. In an oiler of this type there is a cellar or pocket under the journal, containing oil. A ring of larger diameter than the



THREE-BEARING CRANKSHAFT SHOWING OIL PASSAGES FROM JOURNALS TO CRANKPINS IN DOTTED LINES.

to the bearings from which the excess is forced out and drips back to the bottom of the crankcase.

In all but the smallest engines, it is usual to provide some means for feeding oil continuously to the crankcase, if splash lubrication is employed. In such cases the oil may very conveniently be fed through the cylinder wall, the oil port being so located that it is never wholly uncovered by the piston. The oil is forced against the piston, in which grooves are usually cut to facilitate its reception and distribution, and thus the piston and cylinder walls are thoroughly lubricated quite independently of the splash. The oil then drips to the bottom of the crankcase, where it accumulates until it reaches the top of a little stand-pipe, open at the top, through which it runs off, this maintaining a constant level and preventing an excessive accumulation of oil which would result in oil being forced in excessive quantities past the piston and into the combustion chamber, where it would burn and deposit carbon as well as making the exhaust smoky and odorous.

Individual Force Feed Systems.

In engines of the larger types splash is not depended upon to any great extent, oil being forced to the various friction points through pipes. A very ingenious system consists of a series of passages through the crankshaft connecting with the oil-feed pipes and with the oil holes to the bearings. For instance, in a four-cylinder engine with three crankshaft bearings, there will be an oil-pipe leading to each of the end bearings and to the center bearing. The crankpins are drilled radially, the holes opening up communication with passages that lead through the crankshaft to the crankpins beside

shaft, or else a chain, rides on the shaft, its lower part dipping into the oil in the pocket. As the shaft revolves, carrying the ring with it, the ring brings up oil and leaves it on the shaft. The excess of oil runs back into the pocket. This is a form of oiler that has been used with great success in electrical machinery, and has the advantages of being self-contained and automatic in operation.

UNNECESSARY NOISES IN CARS.

Many otherwise excellent cars suffer from the bugbear of noise. Some automobilists do not object to rattle and noise; to others it is most irritating and objectionable, and to all we should think silence, or as near silence as possible, would be infinitely preferable, according to the *Motor News*, of Dublin, Ireland. Some designers have turned their attention directly to the elimination of noise, and it is a big problem. It means that every working joint or bearing must not only be a good fit when new, and of good material, but that provision should be made for easy and accurate adjustment. Towards this end some makers have adopted ball socket joints to all central rods and levers, instead of the forked eye and pin generally fitted. This ensures the ability to tighten up these parts when they wear and prevents any necessity for rattle and noise. At the same time we should point out that in a great many cases the owner or person responsible for the running of the car is to blame. Unless all adjustments are made frequently and periodically wear will increase in a kind of algebraical progression. Such parts as tappets, levers, links and rods should always be carefully examined, and all wear taken up, right from the commencement.

LETTERS INTERESTING AND INSTRUCTIVE

A Novel Method of Connecting the Carbureter.

Editor THE AUTOMOBILE:

[434.]—In the use of my car I have experienced a good deal of trouble through breakage of the small brass pipe which conveys the fuel from the gasoline tank to the float chamber of the carbureter. I have used several different makes of tubing, without correcting the difficulty, which seems to be a matter of the vibration to which it is subjected, rather than a matter of the tubing's quality. As you can imagine, it is exceedingly annoying to have a trouble of this sort occur on the road, and several times I have barely succeeded in getting home by extemporizing a coupling from a piece of rubber tire-pump tubing. One of my fellow automobile users in this vicinity tells me that he has heard of flexible metal tubing being used very successfully in place of the kind now fitted to my car. I have not, however, found it possible to purchase anything of the kind that does not either leak or possess packing that the gasoline destroys, so I am writing to you to learn if anything really suitable does exist, and, if so, where I may obtain it.

Eastman, Ga.

GEORGE CRAIGHTON.

It is rather surprising that you should experience such extreme difficulty as you refer to in securing satisfactory results with the ordinary type of tubing. This sort of tubing is used on nearly all cars, for which reason it should work well enough on yours, unless there is some abnormal and unusual vibration. Is it not possible that, despite your several experiments, you have on each occasion secured some very hard-drawn and brittle grade of tube, with a tendency to crystallize readily under a repeated shock? It is perfectly true that there are flexible tubings with which you should have no trouble whatever. The best of these are wholly of metal, without packing, and are perfectly tight at all temperatures and pressures up to several hundred degrees and several hundred pounds. They are flexible enough to follow curves of very short radius—depending, of course, on the size of the tubing. You should be able to secure flexible tubing of this sort from an eighth of an inch in diameter and upward from any large automobile supply house. This tubing is similar in appearance to that often used as a connection between the horn and horn bulb, but, unlike this, has no packing and is guaranteed to be absolutely tight.

The Self-contained Cone Clutch.

Editor THE AUTOMOBILE:

[435.]—Is it not a defect in the cone clutch that from its very nature it must cause end thrust against the bearings of the two shafts that it connects? I have often heard this objection referred to, and, in view of it, do not understand the present prevalence of the cone clutch, even in the cars of manufacturers who should know better. Is it considered that there are advantages of this type which make it superior to its disadvantages?

Cos Cob, Conn.

HENRY FAIRCHILD.

The cone clutch has some very great advantages, which are causing it to remain in wide use, despite the inroads that the modern disk and other clutches are making upon its popularity. Probably its greatest advantage arises from the fact that it permits the powerful engagement of two very large friction surfaces, which act through the leverage of a considerable distance from the shaft, without requiring more than the slightest of longitudinal movement. The objection you urge does not exist in the best cone clutches, which are, without exception, made self-contained by one means or another. A self-contained clutch is one in which end thrust is taken up completely within one of the two shafts, instead of between them. The inverted cone clutch was at one time a very common construction. This consisted of a cone carried within the flywheel, so arranged that it engaged by a spring that pressed it out against the overhanging flywheel rim, thus imposing no end thrust upon the driven shaft, the squared end of which simply passed into a squared hole at the center of the cone.

Sound Reasoning, but an Unsound Premise.

Editor THE AUTOMOBILE:

[436.]—Referring to Letter No. 406 in The Automobile, page 371, issue of September 20, 1906, in which you do not credit the 98-pound M.E.P. in accordance with your own calculation, if you will take the run that Joe Tracy made in the 90-horsepower Locomobile in the Vanderbilt Elimination Trial, September 22, you will find that the Locomobile maintained a M.E.P. of 103.8 pressure for the 5 hours, 27 minutes and 45 seconds in the 297.1-mile race, the engine having 6-inch stroke and 7 1-4-inch bore, two impulses per revolution. I would like to know if the following calculations are correct, and will be on the lookout for your answer in the columns of The Automobile.

Calculations.—Miles per hour, $54.39 \times 5280 \text{ feet} \div 60 = 4786.32 \text{ feet per minute}$; Diameter of drivers = 34 down to 33 = Circumference of 8.64 feet $4786.32 \div 8.64 = 554 \text{ revolutions of drivers}$; $554 \div \frac{1}{100} = 55,400$ of one per cent, = 587 revolutions and $587 \times 1.18 \text{ to } 1 \text{ gear} = 693 \text{ revolutions of engine per minute}$, and as the stroke is 6 inches, the feet traveled by piston = 693, feet, and as there are 2 impulses per revolution, then $90 \text{ horsepower} \times 33,000 \div \text{area of piston} \times 693 \text{ feet} = \text{M.E.P.} = 103.8 \text{ pounds}$; $90 \times 33,000 = 2,970,000 \div 28,607 = \text{M.E.P. area} = 41.28 \times 693 = 28,607$, or, H.P. = feet \times Area \times Pressure $\div 33,000$.

Upon going over your figures we cannot find that there is any fault in them and must agree with you that the mean effective pressure of 103.8 pounds to the square inch is clearly indicated by the facts as you interpret them. The trouble is that you interpret them wrong. To get briefly at the crux of the matter, you find an average speed of 54.39 miles to the hour, maintained for 337 minutes and 45 seconds. Also, you assume, from presumably correct data and calculations, that the engine revolved a probable average of 693 revolutions to the minute during this period. This, you find—assuming that the motor not only is capable of, but actually did develop exactly 90 horsepower throughout the run—calls for a mean effective pressure of 103.8 pounds to the square inch. So far no one will dispute you; but the absolutely vital, fundamental factor you wholly disregard. So far from disproving the statement to the effect that the power of automobile engines is loosely rated, you help rather to uphold it. How do you know that the engine you cite develops exactly 90 horsepower—no more, no less? It is true that many of the other contestants, with no larger engine dimensions, are rated at higher power, but does this prove anything definite? Also, is it not probable that the engine, even if capable of developing 90 horsepower, was not called upon to do so continuously throughout the race, as your reasoning assumes? One of the facts you refer to—that the piston speed averaged 693 feet a minute—proves the more conclusively that the engine did not develop 90 horsepower continuously, since, if it does develop so much, it probably does so at a materially higher piston speed. There are 40-horsepower touring cars perfectly capable of making 54.39 miles an hour. How much of a mean effective pressure would you reach if you figured the thing out from their cylinder dimensions and piston speed, and the assumption that 90 horsepower must be developed to make the 54.39 miles an hour?

Starting Two-cycle Engines.

Editor THE AUTOMOBILE:

[437.]—Why is it that three-port two-cycle engines are so much harder to start than two-port two-cycle engines? I have had a considerable experience with boat motors of these two types, and find that it is almost invariably the case that the two-port starts more easily.

JAMES C. FREEMAN.

Schenectady, N. Y.

The fact you mention has been often remarked and is characteristic of these two kinds of engines. It is a result of the differences in construction, as will readily appear when these are considered carefully. In starting a two-port, two-cycle engine, practically as soon as the piston has moved enough to create a suction within the crankcase, the check-valve that opens into it permits the entry of fuel, for the simple reason that there is nothing what-

ever but a very light spring on the valve to prevent its entry. This inflow of fuel continues without hindrance as long as there is any suction, with the result that when the piston comes down on the succeeding stroke there is a full charge of mixture ready to enter by way of the bypass into the combustion chamber. With the three-port, as the piston rises, suction is set up but continues to increase, because there is no provision for the entry of mixture until the piston is nearly to the top of its stroke, at which time it uncovers the admission port, through which the mixture then is inspired into the crankcase with a snap. In practice, however, the functioning is not as perfect as on paper, and the rise of the unrelieved suction occasions more or less leakage of pure air through the crankshaft bearings, and of exhaust gases, drawn back from the exhaust passages by the way of the exhaust port, from which they travel circumferentially around the piston to the inlet port and down into the crankcase through the bypass. Obviously, the result is that the charge is not only somewhat attenuated, but also is largely mixed with pure air and with exhaust gases, making ignition uncertain. Also, the fact that the piston must be forced practically to the full height of its stroke against the compression above it, before uncovering the admission, port makes the exertion required so much harder. Incidentally, a good many revolutions are required before the cylinder and crankcase are filled with a sufficiently pure mixture.

Another Opinion on Larger Automobile Wheels.

Editor THE AUTOMOBILE:

[438.]—The article by Charles E. Duryea, in a recent number of The Automobile, advocating larger wheels for automobiles, was interesting to the writer, who has advocated such a departure for several years. The average manufacturer, in response to my advocacy of a larger wheel, while approving of the better results that would be obtained through its use, invariably points out as the great bar to its introduction the extra cost of the tire. They say, "Why should we increase the cost to us of the automobile, when we cannot get any more for the machine than we are getting now with the present wheel?"

The arguments in favor of the larger wheel are acknowledged to be almost flawless, but the argument of the manufacturer, that he cannot get more money for a car if he adopts the larger wheel, does not seem to hold water. If the purchaser of the automobile can be convinced—and there is no reason why he cannot be—the increase of the cost to the manufacturer would, I am persuaded, be willingly paid by the average buyer of an automobile.

The two manufacturing associations could form an agreement to add to the price of their product the extra cost of the large sized wheel. I sincerely believe that the automobile wheel in the future from 36 to 46 inches in diameter, and the latter size preferably.

New York City.

W. J. MORGAN.

Making a Crankshaft for Six-cylinders.

Editor THE AUTOMOBILE:

[439.]—Very few people are aware of the great expense entailed in making a crankshaft, such as is used on a six-cylinder Napier engine. This has to stand enormous stresses and, necessarily, must be made of the highest grade material and with the greatest amount of care in order to get it to stand up under these strains. The illustration shows one of these crankshafts in the different stages of manufacture, and these stages are as follows:

First stage.—The ingot from which the piece is forged.

Second stage.—Billet forged out of the ingot.

Third stage.—Slab made from the billet.

Fourth stage.—The roughly machined crankshaft.

Last stage.—The finished crankshaft.

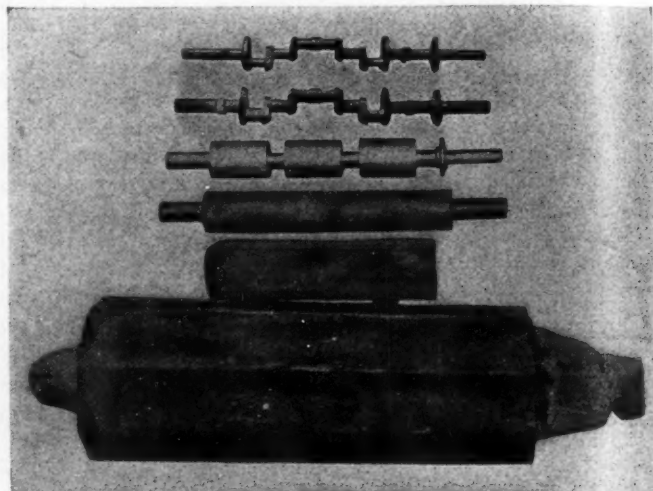
The best chrome nickel steel has been selected as the most suitable material for these shafts, and it is further subjected to special heat treatment during the course of manufacture, which still further increases the strength and durability. These cranks are made only from forgings, and not from drop stampings, thus getting a far more thorough working under the hammer and insuring the greatest possible homogeneity of the material.

Under a powerful press a large ingot is forged into a billet, thereby being reduced to about one-twentieth of its original area. By this thorough working-through of the material a density of grain is secured and unsound places of any sort are rendered impossible. The billet is then carefully examined. The examination extends in the first place over the whole surface and is performed by men who are used to such work and do it with minute care. Any billet which shows the slightest fault will not be passed

out for further manufacture. Then the billet is carefully examined at both ends against "pipiness." For this purpose fresh fractures are made at both ends and their appearance examined by experienced men. If the least sign of "pipe" is traced, the piece is rejected, thus rendering it absolutely impossible that this fault should occur in the finished crankshaft. Precautionary measures against pipe are already taken during the forging of the ingot by at least one-quarter of the total length being cut off at the top ends, whereby, with nearly absolute certainty, the whole ingot pipe is removed. The examination of the fractures has, moreover, the additional advantage of obtaining the security that nothing but the most suitable material, as indicated by the appearance of the fracture, is employed.

After the billet has been submitted to these minute examinations it is reduced under the proper hammers and presses to the rough slab required for each crankshaft. The forming of these slabs is done so as to correspond with the required shape of each crankshaft and with sufficient allowance for finishing left on. The influences of the skin and other superficial inequalities of density arising from the foregoing are entirely removed from the finished crankshaft. The slabs are then skinned, rough turned, planed, etc., to shape and the surface again examined, fresh fractures made at both ends and inspected, thereby insuring a repeated careful selection of the pieces.

After the shaft has been worked up from the slab as described above, it now undergoes a special process of improvement, the object of which is to give the piece the prominent properties, particularly that of toughness, which render the material absolutely



PROGRESSIVE STAGES OF MANUFACTURING 6-CYLINDER SHAFT.

and without doubt suitable for such highly strained constructional parts. This process consists in hardening and then annealing, but the details of the process, being the result of long years of work and experience, cannot be set forth here. The successive stages of the process are controlled by pyrometric thermometers.

The result of this improvement process is then tested by tensile tests, bending tests and Brindell's hardness tests. By the first mentioned the physical qualities are ascertained, the second gives comparative tests as to the toughness, and the last proves whether the piece throughout is of equal hardness and uniform in its quality.

By means of these tests and the repeated examination of the pieces, it is rendered possible to manufacture a material for crankshafts which will answer the highest requirements and which may be said to represent the BEST that it is possible to attain.

The rough turned crankshaft next has the webs finished by milling, after which it is mounted in a specially fitted lathe and the journals and crankpins turned to exact size. As it is necessary to turn each crank separately in order to insure the necessary accuracy, this is a matter of considerable time and the enormous amount of care which has to be expended upon this operation will be better appreciated when it is said that in the minute examination which the crankshaft subsequently undergoes before being put into use, any irregularity in parallelism or roundness of any part, of half-a-thousandth of an inch, is sufficient to secure the rejection of that particular crankshaft.

It is these methods applied to the manufacture of the various parts of a motor engine which mark the difference between the high-grade and the low-grade engine, and it is not possible to incorporate them in the manufacture of a cheap car, but it explains the difference in price, which is not always apparent to the uninitiated.

London, Eng.

S. F. EDGE.

THE PERFECT TOURING AUTO.

PARIS, Oct. 10.—George Kellner, president of the Paris Society of Carriage Builders, and a recognized authority in automobile touring, has just published his ideas on a perfectly equipped touring machine in the form of a small booklet. In M. Kellner's opinion there are only two kinds of automobile bodies for touring: the open car, with a cape hood, for lovers of fresh air and the closed carriage for delicate persons and those desiring comfort.

The chassis should not be too high on its wheels; from the ground to the under face of side frame the maximum of 60 cm. should not be exceeded. At the same time the machinery should not be too low; no portion of the chassis should be less than 25 cm. from the road surface. Cars with a clear sweep underneath raise much less dust than those carrying their mechanism low, and are, besides, less dangerous to any person accidentally run over.

The length of the side frame should be such that the rear seats can be placed over the rear axle, or, if possible, in front of the axle. When the rear seats are placed behind the axle a rolling side movement is set up altogether inadmissible in a comfortable vehicle. The art of constructing a comfortable car lies largely in placing the rear seats in front of the axle without unnecessarily increasing the wheelbase. One hundred and eighteen inches should be accepted as the limit of wheelbase.

Springs should be exceedingly long, with very little bend in them and as numerous as possible. A transverse rear spring is essential. It is necessary that the springs be placed as far outside the chassis as possible, the arc of the springs being 8 to 10 centimeters from the chassis, in order to prevent rolling and to give sufficient clearance so that the chassis does not touch the spring seatings or the brake connections. It is important, also, that the chassis be built within and not on the springs so as to lower the center of gravity and make the vehicle more stable.

The gasoline tank should be placed under the car and independent of the bodywork, so that the passengers will not be disturbed when filling up. This necessarily entails forced feed and additional complications. Pumps, valves and joints should be made as simple as possible.

The under part of the chassis should be protected by a pan the full width of the machine and tapering upward at the rear. The only European firm at present constructing dust-pans of this shape is Delaunay-Belleville. The upward turn does much to keep down dust and at the same time makes it impossible for dirt to enter the pan.

M. Kellner gives it as his opinion that the maximum speed for touring machines should be 38 miles an hour. Twenty horsepower is considered sufficient for a four- or five-seated open body and 35 horsepower for closed body. The rear seat should be wide enough to hold three persons comfortably and the front places should be individual seats.

The hood should be of leather, lined with cloth, and not of canvas, with a long, narrow window in the rear to facilitate reversing. Lockers should be disposed of as follows: The front one for the mechanic's personal use, the rear one for the owner. A luggage rack should be fixed at the rear for carrying trunks. The boxes carried on the footboard should be reserved for tools, pump, air chambers, rags, etc. Outer shoes should be carried on the driver's right, or at the rear above the trunks.

Acetylene lamps with self-generators should be used for preference. Their value will be appreciated when it is necessary to take off a lamp to carry out some repair or read a sign post.

Put a lock on all trunks, baskets, and even on the gasoline tank, says M. Kellner. Some men around garages collect tools; others have been known to pour water in gasoline tanks. See that your car is washed properly. Make your chauffeur carry a soft sponge, a wash-leather and a feather



HENRY H. ROGERS IN HIS WHITE STEAMER.

The above picture of the Standard Oil magnate and his wife was taken at Bretton Woods, N. H., during a recent tour of New Hampshire.

brush. Never allow a hose pipe to be used on your machine if you wish to preserve the varnish. A bucket of water thrown from the front, and one from each side is sufficient to soften the dirt. Go over it afterward with the soft sponge, bathing, as it were, and not rubbing until all the dirt has been washed off. Always wash in the shade, with cold water, and don't use gasoline in the water or you will certainly destroy the brilliancy of the varnish.

AUTO MAIL WAGONS IN BALTIMORE.

The first day's work of the two new auto collection wagons in Baltimore was entirely satisfactory. Not only did they cover the routes of the four horse carts which they have supplanted, but they also made additional collections and finished the day's work after midnight. They carried the better part of the day a mail inspector in addition to the chauffeur and the collector, and the total gasoline consumption for the two vehicles was 23 gallons. The Automobile Outing and Transportation Company, which is furnishing and operating the automobiles for the post-office, expects to reduce the fuel consumption to an average of 10 gallons a day each.

The possibilities of the automobile for quick and efficient service in the Post-office Department are beginning to be realized by the government authorities. It is a branch of government service where the saving of time is the greatest essential feature.



AUTO COLLECTION WAGON IN BALTIMORE MAIL SERVICE.

E. R. THOMAS ON AUTO RACING.

E. R. Thomas, the Buffalo manufacturer, is a believer in automobile racing, and in an interview just given he is quoted in the following strain: "I maintain it is not mere sport, but a contest between nations for supremacy in one of its most important industries; and so long as the Vanderbilt Cup is held by a foreign manufacturer, and the showing by American cars is comparatively poor, not only the automobile industry but the whole manufacturing prestige of America is more or less injured. I believe the donor of the cup 'built wiser than he knew,' for it has and will continue to stimulate American manufacturers until the cup is permanently won for America.

"It is conceded the American cars did not make a very good showing at the end, yet the results are far from discouraging when it is remembered that each of the foreign cars had been thoroughly tried out in three or four bruising races and that they have been in the game for several years, while this is practically the first year that Americans have entered into these industrial contests with cars strictly built on racing lines.

"The sole cause of the failure of real American racing cars to make a creditable showing was due to the tire manufacturers, who were able to furnish only ordinary touring car, non-skid tires for the race. All the foreign cars were equipped with non-skid tires. The winning car changed tires once, and the second car had only one puncture during the entire race. From six to eight minutes was required to change American tires; from two to three minutes was required to change foreign tires. My foreign drivers state that the smooth tread American tires are the equal of, if not superior to, the foreign racing tire, but our loss of the race was due solely to the utterly worthless, non-skidding tires. One tire lasted only three miles; another flew off and became entangled in the steering gear, turning the car across the road, and but for the nerve and coolness of LeBlon the car would have turned over. LeBlon had to change tires three times in one lap, and seven times in all.

"While defeated, I do not feel disgraced. In one year we have produced a car equal in speed, workmanship and substantiability to any foreign car. Our sole trouble was tires and lack of time to thoroughly tune up for the race.

"Many persons have asked me why I have expended such a large amount of money in the production of a racing car, believing that it was of no material benefit to the industry.

"The Vanderbilt course for nearly half the distance is winding part of the way and there were fourteen very abrupt turns. The racing car motors range from two to three times the horsepower of an ordinary touring car, hence the vibration or motor strains were two or three times as great. The construction in many parts was two or three times lighter than an ordinary touring car. The tests of the Glidden tour, leisurely averaging from one hundred to one hundred and twenty miles per day, and carefully nursed and driven by experts, sink into insignificance by comparison with the tests of the awful motor vibrations and the terrible road impact of a car at a speed varying from fifty to ninety miles per hour for 300 continuous miles.

"For ten years road racing has been conducted abroad and users more than manufacturers have been benefited, for it has enabled manufacturers to produce cars hundreds of pounds lighter; motors, gears, bearings, etc., more highly efficient, as well as testing out tires by a better test than is possible by any other method. The result is, cars are far more reliable, much cheaper to operate, and hundreds of dollars is annually saved to the owner of each car because of the science of automobile construction being brought, through racing experience, to the highest degree of perfection. Hence, I reiterate that the Vanderbilt Cup is not only sport for spectators, but the whole manufacturing prestige of America is involved, and every American manufacturer, regardless of what he manufactures, should encourage and give his moral support to the contest."

TOUR CONTESTS FOR FRANCE.

PARIS, Oct. 10.—France will next year have a touring competition worthy of the name unless the Marquis de Dion's plans go seriously astray. The head of the great Puteaux automobile firm intends to revive the European circuit touring competition which had to be abandoned this year owing to lack of competition and the little help received from other European nations.

If the foreign objections again prevail and the run round Europe is definitely abandoned, the vice-president of the Automobile Club of France will put on foot a 6,000 kilometer touring competition, to be run over a closed circuit. A wild mountain district will be selected, probably Auvergne, the scene of the last Gordon Bennett competition, and a difficult circuit of about 100 kilometers mapped out. Day and night, for a period of from nine to twelve days, the machines will have to run round this course without stop at an average speed of fifteen to thirty miles an hour, according to their engine capacity. At night the circuit will be thoroughly well lighted. A team of drivers will be allowed for each car and change of men permitted as often as necessary.

No work on the car, however, will be tolerated except such as can be accomplished with the ordinary tools on board and by the two men in charge of the machine. To prevent racing so as to lay up a few reserve hours against a possible breakdown, a couple of timers will be kept at different points on the course with power to hold up any man exceeding his average speed. With a short circuit not exceeding 100 kilometers to be covered one hundred times a serious control could be kept over all the competitors, trickery would be almost impossible, and the expenses of organizing would be less than over a straightaway course. In any other country but France it would be impossible to obtain exclusive use of 60 miles of road for twelve days. The authorities here, however, are not likely to make any objection. In addition to the endurance test, a fuel consumption competition, tire, and anti-skid band tests could be held.

The Marquis de Dion lays particular emphasis upon the fact that this will not be a fashionable gathering. There will be no luxurious grandstands, carpeted salons, and dining-rooms worthy of the Waldorf-Astoria, as at the Grand Prix. Big crowds will not be sought. Simplicity will mark the entire proceedings and hard work be expected of both machines and men.

The touring competition in connection with the December Salon and consisting of a run from Paris to Nice or Biarritz and return, is at present receiving the attention of the committee, but the regulations have not yet been issued. In this event all the competing machines must be exposed at the Salon after the run, a special section being reserved for them.

AN "OFFICIAL BLUE BOOK" IN EVERY CAR.

A correspondent writing from Oneonta, N. Y., states that when an auto tourist arrives at the local hotels in Oneonta a frequent occurrence is to see a "Blue Book" in the hands of one of the occupants of the car. "The Automobile Official A. A. A. Blue Book" has been found of incalculable worth to all touring motorists, and the Class Journal Company has received great commendation for the excellence of the 1906 issue, which will be very materially improved upon in 1907.

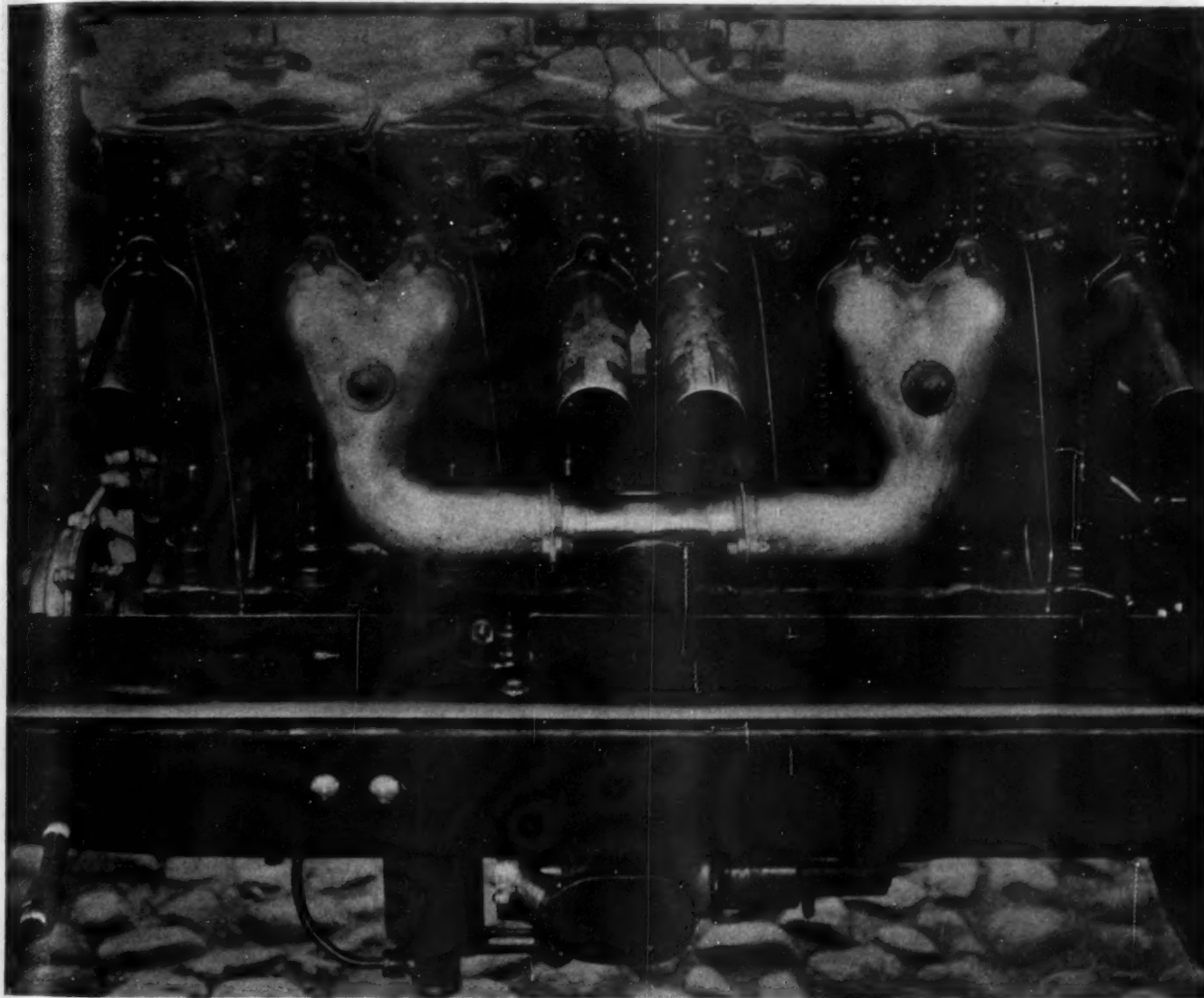
A German company has manufactured 200 omnibuses for a London company. In appearance the vehicles are neat and compact, and their finish, although simple, offers every comfort desirable in a public conveyance. The omnibuses are fitted with 28 to 34-horsepower four-cylinder motors, which are completely inclosed and effectually protected from dirt and dust. Four different speeds can be developed, the maximum being 25 kilometers an hour (about 15 miles); they run very quietly and are built to hold 16 passengers inside and 18 outside. Two foot brakes and one hand brake enable the omnibuses to be stopped within their own length.

THE ELIMINATION CAR THAT DID NOT START

MANY regrets were expressed at the unfortunate accident which, at the last hour, prevented the entry of the B-L-M (Breese, Laurance & Moulton) special racing car in the elimination trial for the Vanderbilt Cup race. A great deal of remarkably fine work had been done on the car, and every possible advantage was taken of the best constructional materials obtainable. As a result, the young builders produced an 85-horsepower racing car that weighed about 1,800 pounds. This lightness was due in a large measure to the liberal use of an

well back, putting a large proportion of it on the driving wheels.

The four-cylinder engine of 6 inches bore and stroke is placed in the usual forward position and has sheet steel water jackets attached by means of machine screws, as the illustration of the engine shows. All the valves are on the same side and are actuated by a single camshaft; the ignition is by make-and-break and the ignition cams are carried on the same camshaft as the valve cams. The time of ignition is varied by moving the levers that transmit motion from the cams to the igniter rods in the direction of the



EXHAUST SIDE OF B-L-M 80-HORSEPOWER SPECIAL RACING CAR MOTOR BUILT FOR VANDERBILT CUP RACE.

Note position of carburetor below frame line and compact intake piping, applied water jackets of sheet steel and make-and-break igniters. Crankcase is manufactured of B-L-M special aluminum alloy.

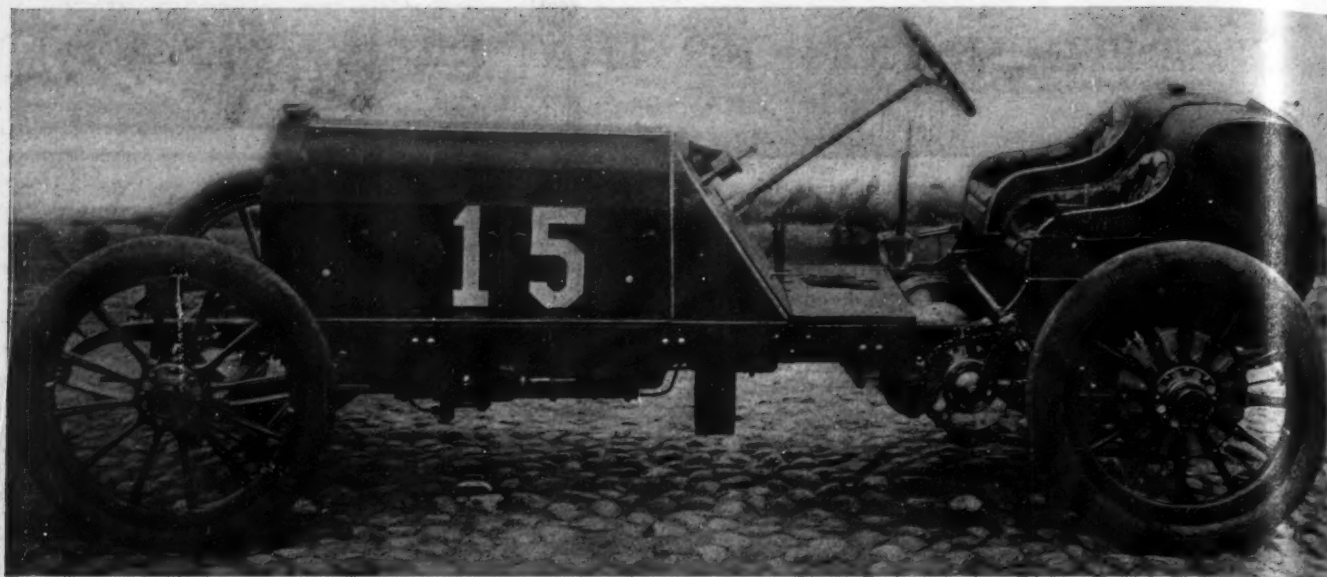
aluminum alloy that is the invention of the members of the firm, and which shows remarkably high strength combined with low weight. Chrome-nickel steel is extensively used, and the great strength of this material, of course, makes it possible to keep the dimensions and weight of parts low. Moreover, the car is a comparatively small one throughout, as is indicated by the fact that the wheelbase is but 86 inches and the tread 55 inches.

In appearance the car is exceedingly compact and business-like. A rather characteristic outline is given by the position of the front axle, which is further forward than is usual in racing cars, while the driver and mechanic sit almost over the rear axle, with the large gasoline tank at their backs. This throws the weight

length of the camshaft, the cams being made like short sections of screws of very steep pitch. Connecting rods hold these levers equidistant from each other, but the rods are fitted with turn-buckles, so that each igniter can be individually timed and adjusted.

An unusual method of construction is embodied in the flywheel. This is of large diameter and light weight, with fan-blade spokes to draw the hot air backward from the bonnet. Integral with the flywheel is the drum on which engages the helical band clutch of the Mercedes type. Flywheel and drum are cast of bronze.

In the change-speed mechanism ordinary practice is departed from. Instead of the well-known arrangement of primary and



SPECIAL RACING CAR BUILT BY BREESE LAURANCE & MOULTON FOR VANDERBILT ELIMINATION TRIAL.

secondary gear shafts arranged at right angles to the countershaft, the B-L-M transmission has its primary and secondary shafts parallel with the rear axle; the clutch shaft drives the primary shaft through bevel gears, the secondary shaft has its ends carried out to form a countershaft carrying the usual sprockets, and sliding gears on the primary and secondary shafts mesh in the usual way. There is no direct drive, all the four speeds and reverse being obtained through gears selectively operated.

Babbitted bearings are employed in the engine, and are hand scraped to their journals. Otherwise the car is fitted with Hess-Bright bearings throughout. The wheels are of wood, specially made for this car, and to the rear wheels are bolted the brake drums and sprockets, each drum and sprocket combination integrally cast of steel. Both front and rear wheels are 34 inches in diameter, with 3 1-2-inch tires in front and 4 1-2-inch tires in the rear.

Some of the parts of this car have been brought down to a very low weight without sacrificing strength. For instance, the crankshaft, which is hollow, weighs but 45 pounds; it has five journals. Pistons are of steel and weigh 5 1-2 pounds each.

DUST-LAYING PREPARATIONS.

Inquiry from America for further information regarding treatment for laying dust on roads, and the success of the various preparations, has elicited the following from Consul Keene, of Geneva, Switzerland:

Coal tar, which as an antidust remedy has given very good results if used carefully, is applied hot on roads, which before application require the following conditions for a satisfactory result: The road must be in a good state, if possible, heavily rolled immediately before; temperature of air must be warm, and roadbed perfectly dry and clean. A shower coming immediately after application will spoil the good effects of treatment. Traffic must be stopped from twelve to twenty hours after the operation. In Geneva applications of hot coal tar cost about 11-3 to 11-2 cents per 1,550 square inches, wages of workmen not included.

Lambercier asphaltine is a specialty manufactured in Geneva by the firm Lambercier & Co., Rue du Vauche. It is a mixture of "mazout" and Galicia oil. It may be applied cold, but hot applications have given better results. Lambercier asphaltine is one of the best, if not the best, of antidust products. The length of application varies according to the traffic and weather conditions. Its cost amounts to a little over 2 cents for 1,550 square inches, wages of workmen not included.

Tar of carbureted water gas, or oil tar, is the residuum of the making of carbureted water gas after Humphreys' and Glasgow's

system. It is a black-brown liquid, not very thick, weighing a little more than water. Its composition is about the following:

	Per ct.
Light oils, from 70° to 170°.....	11.2
Medium oils, from 170° to 230°.....	22.0
Heavy oils (creosote), 230° to 260°.....	16.0
Anthracene, above 260°.....	42.0
Water	3.0
Loss	5.8
	100.0

Tar of carbureted water gas may be applied cold. It can be applied without inconvenience on a bad road, but does not last as long as coal tar; furthermore, it does not resist heavy traffic. Heavy showers dissolve it within a few weeks. On the other hand, it abates dust very well and its cost price is low—4 1-2 centimes (\$0.00868) per square meter (workmen's wages not included).

According to Consul Keene, it was found that such mixable products as Westrumite and Apulvite did not resist the lightest showers and did not give the good results that were expected.

DETROIT'S AUTO INTERESTS.

DETROIT, MICH., October 15.—Detroit's claim to distinction as the largest producer of automobiles in the country appears to be amply justified. Conservative estimates place the value of this year's output from local industries at \$12,000,000, more than 12,000 cars having been turned out. No less than fourteen prosperous concerns are located here, besides half as many more that have met with indifferent success. In addition, the manufacture of automobile accessories has engaged the attention of others, large sums of money having been invested in this manner with gratifying results. To-day the allied industries furnish employment to more than 8,000 workmen, with an annual payroll running far into the millions. Remarkable as is this showing, considering the fact that it was only seven years ago the first factory was started here, future prospects are even more encouraging. It is stated on what is considered good authority that the Pope-Toledo interests are considering establishing a large plant here. The Peerless Automobile Company, of Cleveland, has purchased a site, and it is understood a large factory will be built. Several other concerns are likewise looking toward Detroit, the advantages of centralization and accessibility to the sources of supply being recognized.

Those in a position to speak with authority assert that next year's output of cars will reach the \$15,000,000 mark, if, indeed, this point is not passed, prospects at the present time being more encouraging than ever in the history of the industry.

OCTOBER HAPPENINGS AMONG THE CLUBS

Charming Women in the Floral Parade at Omaha.

OMAHA, NEB., Oct. 13.—One of the most brilliant features of the annual Ak-Sar-Ben festivities at Omaha, an annual celebration, which this year was held September 26 to October 6, was the floral parade of autos. About thirty automobiles, accompanied by numerous other decorated cars containing bands, took part in the contest, and the parade was witnessed by fully 100,000 people. Some of the automobiles were very lavishly decorated. D. C. Bradford, whose car won first prize in the touring car contest, had it decorated with pampas grass brought from California. It was generally admitted to have been the most beautiful machine in the parade, and its bevy of fair occupants lent an additional charm to the decorative features. In the illustration, in order from left to right, they are Miss Florence Lewis, Miss Ethel Robertson, Miss Mattie Robertson, and Mrs. Charles Cray. A miniature of the McKeen automobile was another feature of the parade. Prizes were also given for the most artistic runabout, handsomest turnout driven by a woman, and the most unique design.



PRIZE-WINNING CAR AT OMAHA AND ITS FAIR OCCUPANTS.

Rides Galore for Albany Orphans.

ALBANY, N.Y., Oct. 15.—Last Thursday was a red-letter day in the history of the children of the Albany Orphan Asylum, as it was the day when they were treated to an automobile ride by the members of the Albany Automobile Club. In accordance with a previous arrangement by Messrs. Taylor, Cox, Quayle, and Randonson, of the club and the hospital authorities, the children were taken for a ride through and around the city, visiting the parks and all points of interest, and then out upon the country roads to Londonville and Newtonville, where a short stop was made to serve ice cream and cake to the delighted youngsters. To-day, with the same committee in charge, captained by Chairman Taylor, the children in St. Vincent's Male Orphan Asylum were taken for a similar ride, and on Thursday, October 18, the inmates of St. Vincent's Female Orphan Asylum, with the Sisters in charge of that institution, will be given an auto outing and likewise entertained. This idea of giving the orphan wards of the city an up-to-date entertainment originated with the members of the Albany Automobile Club.

Rochester Hill Climb Postponed Until October 20.

ROCHESTER, N. Y., Oct. 15.—The board of governors of the Rochester Automobile Club has decided to postpone the Penfield Dugway hill climb until October 20, owing to the wet weather which prevailed prior to October 13.

Pennsylvania Federation Entertains State Officials.

PITTSBURG, PA., Oct. 15.—An active step in the advancement of the cause of good roads in Pennsylvania has been taken by the Pennsylvania Motor Federation, with its trip over the Philadelphia-Pittsburg turnpike, with a party of men prominent in political and business circles. The party left the clubhouse of the Automobile Club of Pittsburg, Saturday morning, September 29, in four cars furnished by George E. Turner, president of the club, Edward Kneeland, Frank Saupp and Dr. John A. Hawkins, and the cars were, with one exception, driven by the owners. At Greensburg seven more cars joined the party. These were owned by Hon. George F. Huff, Henry Coulter, John Johnson, of Greensburg, J. S. Hitchman and Edward Hitchman, of Mount Pleasant, A. C. Overholt and J. D. Hill, Jr., of Scottsdale. At Youngstown, ten miles further east, three more cars

from Latrobe, with a full quota of passengers, were in waiting. These were furnished by Messrs. M. W. Saxman, Capt. Jas. C. Peters, Dr. St. Clair, of Latrobe.

Owing to disagreeable weather conditions the following day, the night having been spent at Bedford, the Pittsburg contingent was the only one to reach Chambersburg in time for the mid-day meal. Shortly after their arrival, the Philadelphia delegation, who had spent the previous night at York, pulled in. In their party was Robert W. Hunter, State Highway Commissioner of Pennsylvania. He

joined the Pittsburg party, and the return trip was started at three o'clock.

The trip was free of accidents, and, aside from the weather, Sunday was satisfactory in every way. Should it have no effect whatever on the bill which will be introduced at the next meeting of the Legislature by the Federation, providing for the improvement of this road, it will prove a decided benefit. A number of road commissioners and supervisors were in the Westmoreland County party. These gentlemen thoroughly enjoyed the trip, but the frequent contact of their heads with the tops of the cars was the best argument that could have been introduced against the water breakers, and we have every reason to believe that they will be eliminated on many of their roads.

New Jersey Automobile and Motor Club Opens New Home.

NEWARK, N. J., Oct. 13.—The formal opening of the new clubhouse of the New Jersey Automobile and Motor Club was marked with an automobile parade to-day and a reception in the club in the evening. The program consisted of a reception by Joseph H. Wood, president of the club, and the officers, and was followed with a banquet. The club was then for-

mally declared opened and turned over to the house committee. Winthrop E. Scarritt, former president of the American Automobile Association, made an informal address.

There were about one hundred automobiles in the parade, and the procession was divided into three divisions. The first division started from the clubhouse shortly after three o'clock and proceeded up Broad street, followed by the other two divisions in slow pace. Most of the cars were decorated with American flags and carried the club pennant. There was a crowd of several thousand persons gathered all along the line of march, which formed a narrow lane through which the cars passed. It was shortly after five o'clock when the paraders returned to the clubhouse to take part in the festivities that marked the opening. Speeches were made by members and officers of the club, and the success of the New Jersey Automobile Club was toasted. The house committee consists of William T. Fisk, chairman; George Paddock, Job T. Angel, Jacob H. Dawson and Dr. Frank B. Meeker.

Secretary Goddard Reasons Out a Chauffeur Problem.

CLEVELAND, O., Oct. 15.—Asa Goddard, secretary of the Cleveland Automobile Club, is offering strong opposition to a proposed measure in this city, prohibiting minors from driving automobiles. Speaking of the subject, he says: "My opinion is that an ordi-



MISS DOROTHY GODDARD DRIVING "MARY ANN."

nance making restrictions as to the age of a chauffeur will not be effective. Some boys of sixteen—and girls, too, for that matter—are more apt at guiding a machine than men. There should be restrictions along other lines, but as to age. Why not pass an ordinance prohibiting boys from driving horses? It is even more dangerous, in my opinion, to allow a boy to drive a horse than an automobile. Every day one sees grocery wagons driven recklessly through the streets by boys. The scheme of formal examinations now in force in a number of cities are the right idea. In Chicago the examining board consists of the city electrician, the commissioner of health and the city engineer. This is, in my opinion, an unwieldy method of handling the proposition, as one man could conduct the examination just as well. In Cleveland he would be kept busy about all the time. In Chicago boys under eighteen are not allowed to run automobiles, but in Massachusetts, where a state license is issued, there are no age restrictions. Rhode Island has no automobile speed law and there is less trouble than in most places. If a man is driving carelessly he should be arrested, not simply because he is going faster than a certain rate, but because he is endangering the lives of pedestrians. This is the way it is done in Rhode Island, and it works better than a speed law."

A glance at the accompanying illustration, which shows charming Miss Dorothy Goddard in the "Mary Ann," may explain why the secretary of the Cleveland Automobile Club is opposed to an

age restriction. If Miss Goddard were enjoined from driving "Mary Ann," her "dad" would be forced to hire a chauffeur to drive him to and from his office. The little lady handles the machine with the skill of a veteran, and if all operators were as careful and as considerate of the feelings of pedestrians as Miss Goddard, there would be no occasion for the talk of an age limit.

Contracts Awarded for New Chicago A. C. Clubhouse.

CHICAGO, Oct. 15.—During the past ten days the auxiliary association, which has the work of construction of the new clubhouse of the Chicago Automobile Club in charge, awarded the final contracts, and the work of demolition of the buildings now encumbering the site at 15 Plymouth court has begun. It is expected that everything will be in readiness for the laying of the cornerstone about Thanksgiving Day, and it is proposed to have the ceremony an elaborate one, in which Mayor Dunne will be invited to participate with other city, and possibly some state officials. It is believed the new clubhouse will be ready for occupancy by May 1.

The new building will be five stories in height, with the first floor given up to the entrance and the arched drives leading to the garage elevator. Storage room is provided on three floors for the motor cars, which will be taken up by an elevator. On the second floor will be the parlors, offices, lounging rooms, etc., while on the third there will be a restaurant and women's café. The fourth and fifth floors will be given up to bachelor apartments for the club members, some twenty-five rooms being provided for in Architect Marshall's plans. In the basement will be an English grillroom and bowling alleys and billiard room.

A. C. A. Annual Banquet, December 8.

Saturday night, December 8, with Sherry's as the probable place for its holding, the annual dinner of the Automobile Club of America will take place, with First Vice-President Colgate Hoyt as chairman of the committee in charge. The change is due to the fact that this year the A. C. A. show dates are December 1 to 8 and the place of the exhibition the Grand Central Palace on Lexington avenue and Forty-third street.

The annual election of the club will take place on Monday evening, November 19, and at the present time it is not known whether Dave H. Morris will consent to take the presidency for the third consecutive year. A wide sentiment appears to be in his favor, and he may be prevailed upon to retain office until the club gets installed in the early part of next year in its new home on West Fifty-fourth street between Broadway and Eighth avenue. The limit of 1,000 members has nearly been reached, only lacking fourteen of the complete number.

November 7 to 10 are the dates for the club's commercial vehicle tests, and rules and conditions will be issued in a few days.

Making Preparations for the Ormond-Daytona Meet.

DAYTONA, FLA., Oct. 12.—A special meeting of the Florida East Coast Automobile Association was held at the residence of C. G. Burgoyne, on Friday evening, for the purpose of considering an amendment to the constitution and by-laws reducing the dues and the transaction of business preparatory for the great January meeting on the beach. Vice-President S. H. Gove presided. The following amendment was voted as a substitute for section I, article 10, of the constitution:

All active members shall pay an initiation fee of five and six dollars as dues annually, in advance, on the first day of January.

The resignation of J. W. Wilkinson, who is now a resident of Los Angeles, Cal., was read and accepted, as was also that of E. G. Harris, who will shortly remove to Denver, Col., with the intention of making it his future home. The next meeting will be held November 2.

AUTOMOBILE SERVICE FOR FIRE-FIGHTERS

WHILE the automobile has been used for the purpose of fighting fires in several ways, it remained for the city of Springfield, Mass., to put into operation the most novel system. Recently the city fathers were impressed by the heads of the fire department with the necessity of adding more men to each station, the fire underwriters having contended that the force was inadequate for the needs of a fast

easily detachable clamp. The axes are carried on the side of the body, and the hand spikes and crowbars on the running board. On the floor of the car is coiled 200 feet of regulation hose, and at the rear on the right side the necessary nozzle. Snap fastenings are also provided for carrying the firemen's helmets, while hand lanterns are suspended and fastened to brackets by the side of the operator. The

car is equipped with the regular side oil and tail lights, two gas headlights, and a gas searchlight fastened to the dash, the latter three being furnished with gas from a supply carried in a compressed form in a steel tank on the right side of the car. In addition to the hand horn a siren is also provided, which is operated electrically. Weed chains are used on both rear wheels, while just forward of the latter is a sand box with two outlets, the outlets being controlled by the operator. This is rendered necessary from the fact that Springfield's streets are paved with wood blocks, which, when coated with mud, are somewhat slippery. The eight men composing the crew were individually trained at the factory in the use of the car.

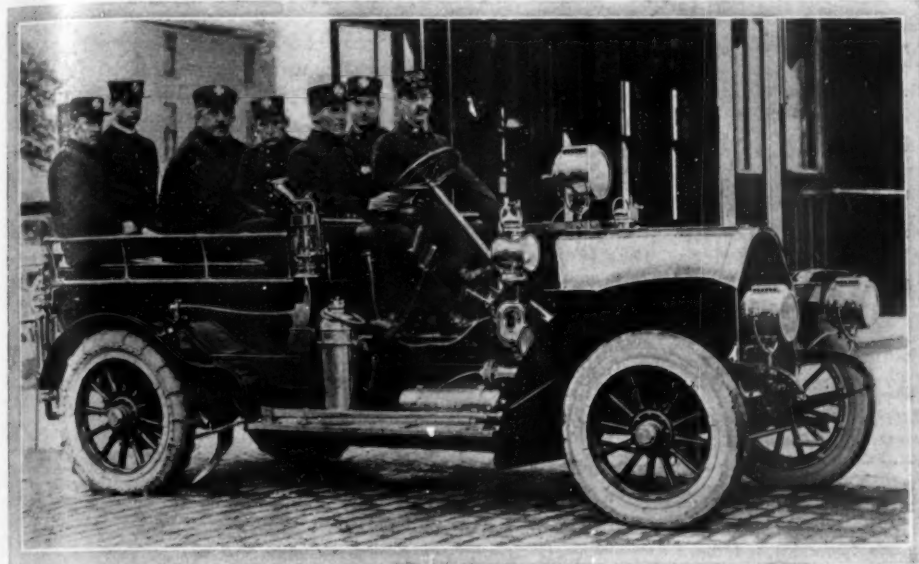
The car is located at the central station, and answers every alarm, and its efficiency has been proved

in a marked way many times since its inauguration into the service a little over five weeks ago.

The car is painted a dark blue, tastefully striped with gold, the chassis being of a bright vermillion with similar decoration. On each side of the hood are the signs "S. F. D. Auxiliary Squad A." The outfit has called for considerable comment, and many fire departments are now inquiring for similar equipment, and it is a safe assertion that they will, in the near future, be considered a necessary component of every fire department that aspires to be considered modern.

growing and enterprising city. It then remained for the city government to choose between adding to the force at each station, or concentrating centrally a body of men equipped with modern means of locomotion, and suitable apparatus for controlling incipient fires. The latter plan was decided upon, and the Knox Automobile Company, of Springfield, was invited to confer with the department chiefs and evolve a type of vehicle that would meet the emergency. There were so many requirements that many consultations were necessary before the ultimate specifications were agreed upon. It was necessary that the automobile should carry at least eight men, some chemical tanks, a fair quantity of hose, and the usual quota of firemen's axes, hand spikes, etc.

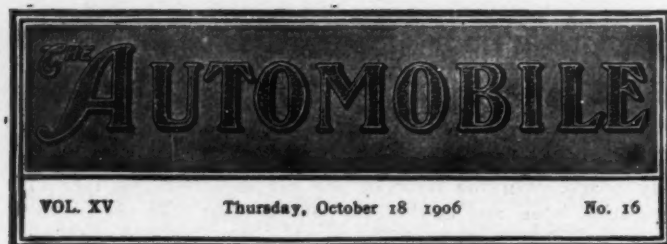
A wagonette style of body was chosen, the front or operator's seat being of the usual design, and carrying one other than the driver. The remaining seats are fitted longitudinally, and carry three men on each side. The automobile is the Knox Waterless, four-cylinder, air-cooled, known as Model G. It is rated at 35-40 horsepower, and has a wheel base of 112 inches. The entrance to the wagonette is naturally at the rear of the car, and at the back of the seats are brass hand-rails, which are more than occasionally necessary when the car is making high speed. On each side of the front seat is fitted a chemical tank, fastened by an



KNOX WATERLESS FOUR-CYLINDER CAR USED BY SPRINGFIELD FIRE DEPARTMENT.



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Federal Regulations a Bar to Alcohol.

Since our last issue, we are in receipt of the regulations just issued by the Commissioner of Internal Revenue, covering the withdrawal from bond, duty free, of industrial alcohol and the methods to be adopted in rendering it unfit for human consumption. These regulations are intended to carry into effect an act passed by Congress, and to those who are interested in the development of the alcohol motor for automobiles and for general power production, we are afraid that they will come as a disagreeable surprise. Indeed, if they had been expressly drawn up with the view, not of facilitating, but of preventing the use of alcohol as a motor fuel, we could understand that the committee which drew them up had thoroughly explored the whole question, had carefully studied foreign practice, and we should feel justified in congratulating them on having executed their task with commendable *éclat*. As it is, the experience gained in foreign countries, especially in France and Germany, where exempt alcohol is no new thing, seems to have been completely ignored, and the regulations are merely a crude reversion to methods which in Europe are discredited and out of date, and which have been proved by hard experience to render the alcohol motor economically and chemically a practical impossibility.

The essence of the regulations, so far as the motor industry is concerned, is:

(1) That alcohol for the purpose of generating heat, light and fuel must be denatured by the addition of 10 gallons of methyl spirit and one-half gallon of benzine to every 100 gallons.

(2) That special industries with special requirements may, on showing cause, use a special denaturant.

It is not rendered clear whether it is benzine proper, a petroleum derivative, which is meant, or benzene (C₆H₆), a coal tar product, which is an almost universal ingredient in denaturing formulas. In light of the fact that the new Carnegie spelling is used elsewhere in the text of the regulations, it is probable that the latter supposition is the correct one. The sting, however, lies not in the ambiguity of the new official denaturant, but in its more than generous proportion of methyl alcohol. It has been shown in France, in Germany and in Italy, by actual experience, that anything over 2 per cent. of this compound causes oxidization of the motor, and leads to excessive fuel consumption; while it needs no lessons from abroad, but only simple arithmetic, to see that 10 gallons of a denaturant, at 60 cents a gallon, added to 100 gallons of alcohol, at 12 cents, will result in too costly a mixture to compete with 15-cent gasoline—cost prices. It is not as if the added methyl spirit improved the calorific quality of the alcohol. The reverse is the case, and the rusting action is entirely due to it. At present 1 per cent. in France and 2 per cent. in Germany is all the methyl spirit that is used for denaturing purposes. Both countries began with comparatively large proportions, 15 per cent. in the case of France, 10 per cent. in the case of Germany, and both were compelled to alter their denaturing regulations. Why is it incumbent on America to repeat their experience and their mistakes?



Apparent Inutility of the Present Amateur Rule.

In automobile competition—no matter what form of the pastime—the impossibility of a strictly drawn amateur rule becomes more inadvisable and unnecessary as the industry grows older. Any man who indulges extensively in contests must either be a millionaire or a tradesman, and with plenty of time in which to become proficient the man of means has as much chance of becoming the speed or tour king as the driver who participates because opportunity comes to him as a part of his work. And it must be said for the millionaire auto sportsman that, as a class, he has never asked for a rigid line of demarcation, and with few exceptions has ever been willing to lock horns in the open without any thought of the social qualifications of those whom he opposed.

It's the car, and not the man, to be reckoned with; let the best pilot possible be obtained, but require that the car conform to racing rules if in high-speed events, and be subjected even to closer scrutiny in touring-class contests. All automobile competition has an industrial phase, and it is out of the question to eradicate this tinge, which is, in reality, its life's blood. There is small reason to doubt but that many of the noted drivers credited with independent means have a more or less substantial factory connection.

Therefore, a stipulation which Professor Von Herkomer desires in the 1907 competition for his cup—at present the most notable touring competition of the year in Europe—would seem to be detrimental in a marked degree if a plentiful entry list is desired. The German donor practically promulgates decisively this rule: "Only such persons who have never in their life been paid for the driving of a car are permissible as drivers." If a driver can obtain money through the fact that he is a stockholder in a company which manufactures cars, or acts as the selling agent of another concern, why doesn't he belong in the so-called professional class with the driver who receives salary as an employee?

But what's the good of handicapping these contests by trying to separate through a technicality those who ask no special consideration from those who are avowedly paid drivers. The public wants to know what the car can do under the best possible handling, and it doesn't care a fig whether the driver is rated an amateur or a professional.

NEW POLICY OF THE POPE COMPANY.

The Pope Manufacturing Company has decided that hereafter its various lines of Pope automobiles will be sold exclusively through agencies, and as a result of this decision the company branches in Boston, New York City and Washington will be discontinued. In Boston, the Dodge Motor Vehicle Company, 891 Boylston street, will handle a complete line of Pope cars, and on November 1 the Columbus avenue branch will be closed.

In New York City, the A. G. Southworth Company, which for the past five years has conducted the Brooklyn branch of the Pope company, will move to Manhattan Borough on November 1 and assume the direction of the big establishment at 1733 Broadway. John W. Sutton is president of the company and A. G. Southworth the general manager. The firm will continue its Brooklyn plant, with A. W. Blanchard in charge. Mr. Southworth transferring his operations to the Broadway store. C. W. Spencer, the present assistant manager, will be retained as head salesman. Eliot F. Mason, who has been the manager of the New York branch and associated with Pope interests for the last twenty-seven years, will remain in the employ of the company in another capacity.

THE N. A. A. M. RULING ON SHOWS.

Through its general manager, S. A. Miles, comes the following announcement from the executive committee of the N. A. A. M.:

"At the recent meeting of the executive committee of the National Association of Automobile Manufacturers, Inc., the association's resolution relative to sanctioned shows was so amended that hereafter all matters relative to exhibits of parts and accessories will be taken care of by the Motor and Accessory Manufacturers, Inc.

"The National Association has decided to sanction no shows for the season 1906-7 except those at New York and Chicago, which means that manufacturers of automobiles, as such, are not permitted to take part in any local show, but that the exhibits must be made by local dealers, branch houses being considered in this connection in the same light as dealers.

"If, however, the Motor and Accessory Manufacturers, Inc., sanctions local shows, makers of parts and accessories may exhibit thereat without, in any way, interfering with their right to exhibit at the national shows."

DISTRIBUTING SPACE FOR DECEMBER SHOW.

The show committee of the Automobile Club of America has been engaged this week in allotting the space for its December exhibition in the Grand Central Palace, New York City. The American Motor Car Manufacturers' Association has apportioned the space set aside for its members, but the details will be made known when the general distribution is announced, early next week. While only 55,000 square feet of space are available in the Palace, the A. C. A. committee has applications in hand for over 60,000 square feet.

It is expected that the showing of commercial vehicles will be very complete, and there will be an airship section similar to what was included in last winter's club show.

EMPIRE CITY TRACK'S 100-MILE RACE.

The star event of the race meet at the Empire City track, Yonkers, N. Y., Saturday, October 20, will be the 100-mile event in which the following notables are scheduled to participate: Haynes, 50 h.p., driven by John Haynes; Oldsmobile, 40 h.p., driven by Ernest Keeler; Peerless, 45 h.p., driven by C. J. Wridgway; Stearns, 35 h.p., driven by Guy Vaughan, and two Cadillacs, driven by L. R. Burns and H. A. Roberts. It is possible that Walter Christie may be a starter. The century contest will start at 12 o'clock, and after it is finished will come the short-distance races.

MICHIGAN'S GOVERNOR AUTO CAMPAIGNING.

GRAND RAPIDS, MICH., Oct. 15.—Fred M. Warner, Michigan's governor, has become an automobile enthusiast since he started to make a campaign for re-election in an automobile. When on the warpath Governor Warner carries very little baggage, and this is generally contained in a small hand satchel.

"I have gotten all over the idea that the farmers get prejudiced when I visit them in an automobile," said Governor Warner, when speaking of his work. "Some people warned me against it, and I was in a little doubt myself; but, after the experience I have had I am sure there is no foundation for the objections. The farmers realize that the automobile has come to stay, that Michigan is the greatest auto producing state in the Union, and that millions of dollars of capital are tied up in the industry. They realize, too, that in this way I can get to them when I couldn't in any other way."

"Don't you fear making enemies by scaring horses in the highway?"

"No, there is very little danger of that any more. The horses are becoming pretty well accustomed to the machines. I favor the auto for campaign purposes because it is so easy to get to the small towns away from the railroads and talk to people whom you could not otherwise reach."

DIST. OF COLUMBIA REGISTRATION FACTS.

WASHINGTON, D. C., Oct. 15.—The third annual report of the Automobile Board of the District of Columbia shows the board held twenty-four meetings during the year and examined 879 applicants, 873 of whom were recommended and given permits to operate automobiles, while 6 were rejected as incompetent. Of the 873 permits issued 232 were for electric cars, 495 for gasoline, 107 for steamers and 39 for motorcycles. During the year 506 automobiles were assigned identification numbers, 114 being electrics, 297 gasoline, 52 steamers and 43 motorcycles, while 246 cars to which identification numbers had been assigned were transferred to the purchasers of them, and 89 cars from different states were also registered. New York furnished the largest number of visiting cars during the year, 27 in all, while Maryland furnished 21, Pennsylvania 13, New Jersey 12, Massachusetts 5, Illinois 3, and Canada, Connecticut, Indiana, Maine, Ohio, Rhode Island and Virginia each furnished 1.

At the close of the fiscal year 1,757 motor vehicles of all kinds were registered in the District of Columbia, and since the date of the first examination, August 11, 1903, permits to 2,377 operators have been granted.

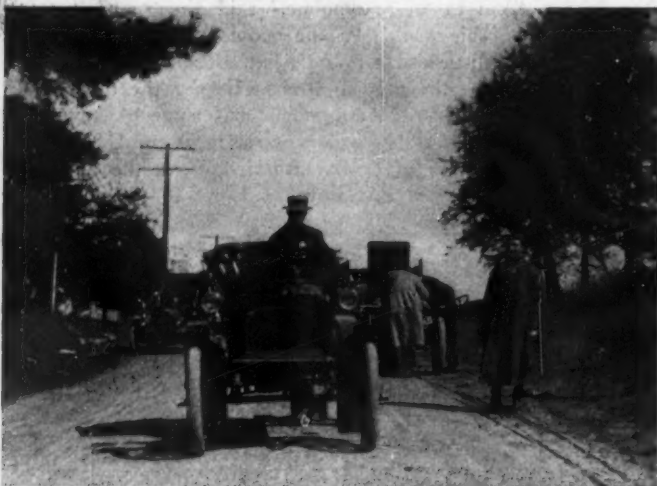
AUTO MAIL SERVICE IN DETROIT.

DETROIT, MICH., Oct. 15.—So successful has the auto mail delivery in this city proved that there is a possibility of the entire local service being performed in this manner. Something more than a year ago an Oldsmobile truck, with a body corresponding in general design to the standard mail wagons, was placed in commission between the main office and station F, located in the extreme northeastern part of the city and serving a score or more of large manufacturing institutions besides a large residential section. To have performed the required work in the old way would have required at least two wagons. Furthermore, from the nature of the business, expedition played a prominent part, it being found that with an automobile the mails could be kept open much longer and still make the necessary connections.

After fully demonstrating the merits of the system, Postmaster Homer Warren had induced the post-office department to modify the customary specification, and tenders are now being invited for an automobile service as well as wagon transportation. At present the wagons are employed in carrying mail from the central office to the sub-stations, five others of a larger size being used on runs to and from the depot.

BABCOCK ELECTRIC GOES CENTURY.

The steady, persistent work of battery manufacturers along conservative lines has had its effect, and the storage battery now in use is a very different affair from those used in the early stages of the electric vehicle movement. This was very forcibly indicated by the recent excellent performance of a Babcock electric car, driven by F. A. Babcock, of Buffalo. This



THE ELECTRIC NEVER HESITATED DURING THE JOURNEY.

machine, fitted with a 17-cell battery, started Saturday last from the garage of Wyckoff, Church & Partridge, Broadway, New York, and ran to Philadelphia, a distance of 100 miles, on a single charge of the battery. In the car with Mr. Babcock was C. A. Benjamin. Starting at 8 o'clock in the morning, Philadelphia was reached at 6:30 in the evening, stops having been made at Newark and Trenton, N. J., for refreshments, but none for charging. An English Daimler, driven by J. E. Demar, accompanied the little electric vehicle to watch its progress and see that there was no hitch. Several other machines went along through pure interest in the test. The roads were in rather poor condition and the drain on the battery was such that when the car pulled up at the Hotel Bellevue-Stratford in Philadelphia it was nearly exhausted. Doubtless the car would have been good for several miles after reaching Philadelphia had it not been for the fact that a stretch of road smothered in mud made it necessary to travel an extra five miles to dodge the mire.

FORD TO MAKE ONLY TWO MODELS.

The Ford Motor Company is among the early ones to announce a definite line of cars and a policy for the coming season. Instead of waiting until the New York show time to disclose its new models, the announcement is authoritatively made by James Couzens, Secretary-Treasurer of the company, that the six-cylinder touring car and the four-cylinder \$500 runabout will constitute the entire Ford offering for 1907. The first ten thousand of the runabouts are now well under way and already orders are being placed for a second ten thousand. One thousand of the six-cylinder cars will be made and these also are well under way. The price of the runabout will not be changed, despite rumors to the contrary, but the price of the six-cylinder model will be raised to \$2,800.

While rated at the same, the forty horsepower of the 1907 "6-40" will be considerably greater than that of last year. The motor has not been changed in dimensions, but greater power has been obtained by refinement of small details. The wheelbase is increased six inches, making it 120, and the body design has been changed. The new Ford body is of the popular round corner tonneau type with graceful straight side lines. The double system of ignition is retained, the high-tension magneto having given perfect results. An eight unit force feed oiler has been added and the radiator has 25 per cent. greater capacity to take care of the increased compression. The 1907 six-cylinder car will be ready for delivery in thirty days.

THREE LOZIER RACERS FOR 1907 CUP CONTEST.

Three racing cars will be constructed by the Lozier Motor Company for the 1907 Vanderbilt Cup race. Gradually the Plattsburg, N. Y., plant of the Lozier company has been enlarged until it is now one of the best equipped in the country for automobile building. The factory is built on a plat of ground covering several hundred acres on the shores of Lake Champlain, and plans have been drawn for a track which will be approximately three and a half miles in circumference, this being made possible by securing right of way in an adjoining plat. With a track of this kind, the Lozier racing cars will have exceptional opportunities for demonstrating their speed. One of the reasons for the failure of American cars to make a better showing has been the lack of opportunity for actual speed tests, except during the comparatively few days preceding the actual test, but with a private course at the factory, Lozier cars will enter the races thoroughly tested under highest speeds.



AN INCIDENT IN THE RECENT CUBAN REBELLION—LOCOMOBILE AND ITS OCCUPANTS HALTED BY SOLDIERS.

The photograph was taken at Cemetery Hill, where the Locomobile agent, Senor Lopez, who was accompanied by Bishop Fernandez and Captain Melch, of the Cuban artillery, was halted by a detachment of Government troops stationed here to guard the floating bridge over the Almendares river.

MICHELIN'S ADVICE TO TIRE-USERS.

PARIS, Oct. 10.—Every careful chauffeur, says Michelin, the tire king, now takes our advice and carries one or two spare tires with him, no matter how short his journey may be. He acts wisely in this, for one cause of the deterioration of tires is the hasty way in which they are repaired on the roadside. Even the careful chauffeur, however, sometimes finds himself without a spare shoe and has to put on a patch in the open air.

This is how he should proceed: Take off the shoe and turn it in order to facilitate the placing of the patch; choose a piece of rubbered cloth a few inches larger than the blowout and cover it, as well as the inside of the shoe, with a layer of solution, taking care not to use too much. When the patch has been placed in position and is dry, rub all over lightly with a cloth dipped in French chalk. Then remount the shoe.

Automobilists in general use too much solution, and when they apply the patch the excess spreads out round the edges. The result is that when pressure is applied the air chamber becomes so thoroughly attached to the shoe that it cannot be withdrawn without tearing. In addition the solution gathers up the French chalk, which agglomerates, hardens, and finally cuts the air chamber. Therefore avoid too much solution and always rub the chalk on with a cloth.

When the tire is remounted, inflate it to about two pounds pressure, then place a temporary sleeve in position over the shoe and lace it tightly round the rim, just as you would lace a boot. Make all as tight as possible and securely fasten the lace. All that now remains to be done is to pump up the tire to its full pressure.

THE SEMMERING HILL CLIMB.

PARIS, Oct. 9.—The eighth annual Semmering hill climb, over a ten-kilometer road with an average grade of 8 per cent., and including sharp turns, was run off September 23. Weather and road surface were perfect, the turns were slightly cut up as result of the previous day's practice, but this only prevented skidding without injuring tires too much. The classified results were as follows:

Light motorcycles (35 kilos).—1, Nezka, Puch, 10:13.

Motorcycles weighing 65 kilos.—1, Comte Kolowrat, Laurin-Klement, 2:38.

Runabouts, 250 to 400 kilos.—1, Yerns, Darracq, 8:46.

Cars weighing 650 to 1,000 kilos.—1, Braun, Mercedes, 7:47; 2, Poege, Mercedes, 7:58 1-5; 3, Demogeot, Darracq, 8:11 4-5.

Cars of cylinder capacity, 1 liter, 500.—1, Slevogt, Laurin-Klement, 17:26; 2, Kollarz, Laurin-Klement, 17:35 3-5; 3, Joerns, Darracq, 19:16 1-5.

Class 7, cars of cylinder capacity 2 liters, 500.—1, Beyschlag, Opel-Darracq, 15:20; 2, Loeffler, Peugeot, 17:26; 3, Klinka, De Dion, 18:10.

Class 8, cars of cylinder capacity 3 liters, 500.—1, Julius Milch, Bock & Hollaender, 14:23 2-5; 2, Mouson, Darracq, 14:44 2-5.

Class 9, cars of cylinder capacity 6 liters.—1, Erle, Benz, 9:56; 2, Hieronymus, Spitz, 10:18.

Class 10, cars of cylinder capacity 8 liters, 500.—1, Deplus, Pipe, 10:14 4-5; 2, Opel, Darracq, 10:15; 3, Seidl, Mercedes, 10:44 3-5.

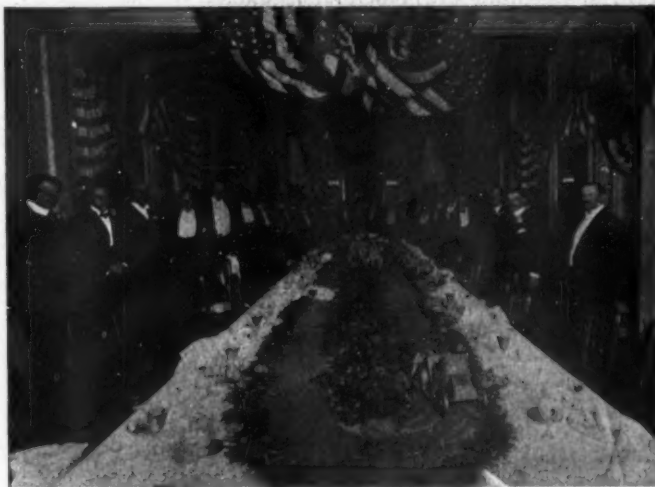
Class 11, cars of more than 8 liters, 500 cylinder capacity.—1, Braun, Mercedes, 8:44 4-5.

ELECTION DAY USE OF AUTOS.

INDIANAPOLIS, IND., Oct. 15.—It has been decided by the campaign managers of the Republican and Democratic parties in this city to employ automobiles exclusively in the city and Marion county on election day. The automobiles will be used for the purpose of taking voters to the polls. No less than 200 automobiles, 100 for each party, will be required for election day, which will be November 6.

THE DINNER TO WAGNER, THE VICTOR.

At the Café Martin, New York City, Thursday night, October 11, Edward Gibbs Murphy, the well-known auto enthusiast, gave an elaborate and artistic dinner to Louis Wagner



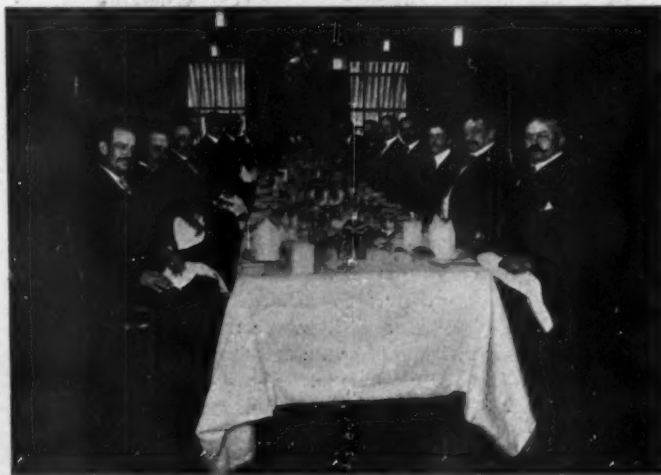
THE WAGNER BANQUET TABLE AND THE GUESTS.

and the members of the Vanderbilt Cup Commission. Chairman J. D. Thompson made a versatile toastmaster, and he was flanked by Cup Winner Wagner, the guest of honor, President John Farson, of the A. A. A., and ex-Chairman R. L. Morrell and A. R. Pardington. A representation of the Long Island course was given with pleasing effect on the table, around which were seated a half hundred guests.

QUAKERTOWN WILL HAVE SOME SPEEDING.

PHILADELPHIA, Oct. 15.—Local embryo Wagners and Lancias are grinding their loins for a brace of struggles with the foreigners of adjoining counties, the first of the meets being scheduled for the 27th, at Bethlehem, Pa., under the auspices of the Bethlehem Automobile Association, and the second at Point Breeze track, this city, on the following Saturday, under the management of a local newspaper.

With the Automobile Club of Philadelphia's annual cross-country run on the card for next Saturday, the next three weeks will be moderately busy for the Quaker motorist with the speed bee in his bonnet.



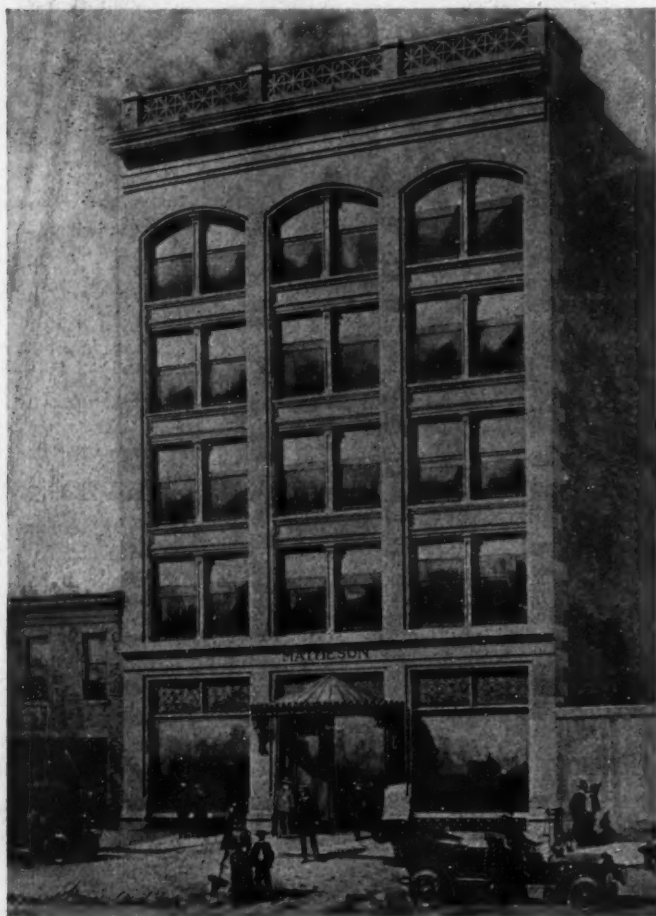
MADISON SQUARE GARDEN STAFF AT LUNCHEON.

The Exhibition Committee of the Association of Licensed Automobile Manufacturers entertained the staff of Madison Square Garden, where the annual shows are held, to a luncheon last week. Col. George Pope, the chairman of the Exhibition Committee, presided at the head of the table.

A SPLENDID HOME FOR AUTOS.

Typical of modern building construction will be the new garage now in course of erection on Broadway, New York, for the Matheson Motor Car Company. The accompanying illustration shows the general appearance of the building. Reinforced concrete is the material used, walls, piers, girders, beams and floors all being of reinforced concrete, and, of course, absolutely fireproof. While the building is at present five stories high, not including the basement, the foundations and walls have been so planned that three additional stories can be superposed when necessary.

Repair shops and stock rooms will occupy the top floor, which will be well lighted by large skylights in addition to the side windows. On the three intermediate floors cars will be stored; there will be room for about 150 machines.



NEW MATHESON STORE, BROADWAY NEAR 50th STREET.

The main entrance for automobiles will be on the Seventh avenue side of the ground floor. On the Broadway side will be the showroom, and this will be the crowning feature of the whole building. The room will measure about 36 by 48 feet, and will be very lofty, with columns and pilasters of Scagliola marble supporting an ornamental bronze balcony and the decorated plaster ceiling. Extending around the room will be a Flemish oak wainscot 11 feet 6 inches high, with panels of dark green burlap. The white oak floor will be laid in herring-bone fashion and will be finished in wax. On the bronze balcony will be lockers for patrons, each locker 24 by 36 inches by 7 feet high.

Off the showroom will be the usual rooms for patrons, including separate rooms for ladies, all fitted up with every convenience and comfort. Chauffeurs will have a room of their own on the second floor on the Seventh avenue side of the building with shower baths, and so on. Each chauffeur will have his own metal locker. Over the entrance to the

showroom will be an ornamental glass marquise; this room will be partitioned off from the main salesroom, so that there will be no disturbance in the showroom from mechanical noises in the salesroom.

The basement will be devoted to commercial vehicles, oil storage, and so on, and will have repair pits and other facilities for handling big machines. Two elevators, with a lifting capacity of 12,000 pounds each, will run to every floor, there being a turntable on each floor.

Weather permitting, the building will be ready for occupancy about the first of the new year, and the company will be settled in its new quarters in time for the automobile show in January. Marvin & Davis, of St. James' Building, New York, are the architects of this splendid automobile building.

AN EIGHT-CYLINDER MARMON TO BE BUILT.

INDIANAPOLIS, IND., Oct. 15.—An announcement of considerable interest is contained in the statement that Nordyke and Marmon, who make the line of Marmon air-cooled cars, are to place an eight-cylinder touring car on the market in 1907. This announcement is accompanied by another, that the Marmon will employ air-cooled motors exclusively during the coming season and that no attempt will be made to enter the field of commercial vehicles.

There will be manufactured by the company next season, in addition to the eight-cylinder car, two touring cars fitted with four-cylinder, air-cooled motors, similar to the design of the cars of that size made by the company this season.

It is probable that the eight-cylinder car will be rather late in appearing on the market, as work was started on it only recently. A model has not yet been completed, but the big factory is busy on this one car, and before many weeks it will make its debut.

Only a few points regarding the big car have been made public, as the company desires to complete a car and test it thoroughly before the details of its construction are made public. It is known, however, that the cylinders will be of 5-inch bore by 4 1-2-inch stroke and that they will be cast in pairs. They will also be set four on a side at an angle of about 90 degrees. The big car will be light in weight, but of powerful construction. It is believed that the total weight, fully equipped, will be in the neighborhood of 3,300 pounds. Cast aluminum will be employed in the construction of the bodies, thus reducing weight to a minimum and assuring strong construction.

There will also be a decided change in the hood, which will give the big Marmon an appearance much different than that of this season's models. The body will be large and roomy and will comfortably seat seven passengers, all facing forward. The wheelbase will be 124 inches. Wheels will be of the wooden artillery type and will be fitted with clincher tires 36 by 5 inches, both front and rear. Not more than twenty-five of the cars will be built during the coming season.

ANOTHER OHIO AUTOMOBILE COMPANY.

COLUMBUS, O., Oct. 15.—Some time ago exclusive mention was made in THE AUTOMOBILE that leading local capitalists would organize a company to manufacture a new air-cooled auto engine, invented by F. S. Harmer, of this city. It was also stated that C. Edward Born, a prominent business man, was interested in the project. The plans have matured and the company has been incorporated. In addition to Mr. Born, Carl J. Hoster, Thomas Curtin, and the Curtin-Williams Automobile Company will finance the company. Mr. Harmer gets a large block of stock for his invention and experience. The company will build a factory this fall and manufacture 24-horsepower cars of 1,950 pounds weight. Tests of the new engine demonstrate it to be thoroughly successful.

PREMIER WATER-COOLED CAR FOR 1907.

In order to meet the demands of those who like the general design of the Premier car, but prefer a water-cooled motor, the Premier Motor Car Company, of Indianapolis, Ind., has placed on the market for 1907 a water-cooled machine of 24-28 horsepower with regular touring car body for carrying five passengers.



1907 PREMIER 24-28-HORSEPOWER WATER-COOLED CAR.

The cylinders of the motor are cast separately, with integral jackets, heads and valve housings, and the valves, all mechanically operated, are placed on opposite sides. The bore and stroke are each 4.1-4 inches. The crankshaft runs in three bronze bearings. Water circulation is maintained by a pump. A positive pump lubricator sends oil to the frictional surfaces of the engine. Ignition is by jump spark, a quadruple coil being mounted on the dashboard.

From the engine the power is transmitted through a multiple-disk clutch to the three-speed and reverse sliding gear transmission. The gears are operated on the selective system, a single lever controlling all speeds. Final drive is by propeller shaft and bevel gears to the live rear axle.

The body is of decidedly pleasing design, and the wheel-base of 107 inches is sufficiently long to give easy riding, while not so long as to make the car awkward to handle on short turns or in traffic. The springs are all full elliptics, of the

special shock-absorbing type used on Premier cars. The dash is of metal, and the dished or semi-hollow type that is so deservedly popular, and at the bottom is brought to the floorboards in a sweep that meets the forward sweep of the front seat, and gives a graceful appearance to the front part of the body. The lines throughout are simple and attractive. The price of the car, \$2,250, includes a full equipment of tools and lamps, the machine being ready for the road as soon as the purchaser gets it.

R. M. Owen & Company, of 36-40 West Sixtieth street, New York, have taken the general sales agency for the Premier cars and will handle the water-cooled models.

AUTO TAXIMETER CABS FOR NEW YORK.

Dr. D. E. Lehwess, an automobile exporter from England, has just arrived in this country for the purpose of consummating an arrangement with the New York Transportation Company for the placing of auto cabs fitted with "taximeters," an idea which has met with great success in France and Germany. Dr. Lehwess brought with him eight of these vehicles. The engines are of four cylinders, and of about 14 horsepower and made in Germany. A hundred more of these cars will be shipped in the next three months.

The price to passengers for transportation in these auto cabs will be 50 cents for the first mile, 40 cents for the second mile, and 35 cents for each succeeding mile.

Dr. Lehwess has also come to America with a view of buying of electric batteries for a big London concern now running electric omnibuses in that city. Dr. Lehwess wants as a condition to his contract a guarantee for two years from the manufacturer of the batteries.

WINS OF LEE-GUINNESS AND HIS DARRACQ.

BLACKPOOL, ENGLAND, Oct. 13.—In the auto races to-day the kilometer race, with a flying start, was won by Lee-Guinness, with a 200-horsepower Darracq, in 21 seconds, the English record. He also won the kilometer race, standing start, in 32.2-5 seconds, reducing the record time by 1 second.



THE AUTOMOBILE CLUB OF CANADA RECENTLY HELD A CONTEST TO DEMONSTRATE PERFECT CONTROL—THIS MAXWELL WAS ONE OF THE TWO PARTICIPANTS THAT TIED FOR FIRST HONORS.



FRANKLIN GIRLS FROM THE FRANKLIN FACTORY ENJOYING AN OUTING IN FRANKLIN CARS AT SYRACUSE N. Y.

DETROIT'S LATEST TRADE ACQUISITION.

DETROIT, MICH., Oct. 15.—Detroit's prestige as the hub of the American automobile industry has just received another substantial boost through the announcement that the De Luxe Motor Car Company, of Toledo, will become a Detroit institution. Negotiations in progress for some months between the Detroit Board of Commerce and officials of the De Luxe company finally culminated in the latter deciding to remove to this city. After this had been agreed upon, a movement was set on foot which resulted in the reorganization and absorption of the Blomstrom Motor Car Company, together with the extensive plant in the West End. Under this arrangement the company will be enabled to continue active operations until the mammoth new factory planned can be built. Under the reorganization the De Luxe Motor Car Company increases its capital stock from \$750,000 to \$1,000,000, \$800,000 of which is paid in. The output for 1907 will be 500 cars, 200 of which will be large touring cars and 300 of a smaller type.

Officers of the company are: N. M. Kaufman, Detroit, president; George M. Verity, Middletown, O., vice-president; T. M. Keeton, Toledo, secretary; D. W. Kaufman, Detroit, treasurer. W. H. Morgan, Alliance, O., Henry E. King, Toledo, and Frederic W. Whiting, of Detroit, in company with the above, form the board of directors.

T. M. Keeton, secretary of the company, was general sales manager of the Pope-Toledo company. The engineering department will be in the hands of F. S. Davis, John A. Herzog and Fred A. Meets, who were with the Pope-Toledo company. About 200 expert men will be brought from Toledo, and the company will at once employ from 800 to 1,000 workers.

A VARIED NEW HAMPSHIRE BUDGET.

PORTSMOUTH, N. H., Oct. 15.—The state roads of New Hampshire, thanks to the advent of the automobile, are engaging the attention of people of this state now more than ever before. The outspoken criticisms of automobile parties touring the state, against the condition of these roads, which, taken as a whole, are bad, has awakened men in public life to a realization of the duties incumbent on all who are in positions to exert an influence for the betterment of conditions prevailing.

Strawbury Bank Grange observed Thursday evening, October 11, as Automobile Night, and a discussion on the subject, "Is the Automobile Destined to Take the Place of the Horse?" was taken part in by J. W. Bartlett, Dr. Towle, Judge E. H. Adams, Burpee Wood, and W. H. Alvin, all prominent citizens of Portsmouth. Automobile songs and music by two of the ladies present were a feature of the meeting, as were also papers on "The Growth of the Automobile," "The Passing of the Horse," "What it Costs to Run an Automobile," and "The Farmer's Attitude Toward the Automobile." "Gasoline" was sung in chorus at the close of the meeting.

The old Jones shoe factory at Hampton has been rented by a company composed of Joseph O. Hobbs, Captain Stewart, and Harry B. Drew, for the manufacture of what the inventor, Harry B. Drew, has named "auto lunch boxes," to be carried on automobiles.

THE AUTOMOBILE CALENDAR. AMERICAN.

Shows.

- Dec. 1-8.....—Seventh Annual Automobile Show of the Automobile Club of America, Grand Central Palace, New York City, under the patronage of the American Motor Car Manufacturers' Association.
- Jan. 12-19.....—Annual Automobile Show of the Association of Licensed Automobile Manufacturers, Madison Square Garden, New York City.
- Feb. 2-9.....—Chicago Automobile Show, Coliseum and First Regiment Armory. S. A. Miles, manager, 7 E. 42d Street, New York City.
- Feb. 11-16.....—Detroit Automobile Show, Light Guard Armory. E. E. McMasters, Manager.
- Feb. 18-23.....—Fifth Annual Automobile Show, Buffalo, Convention Hall. D. H. Lewis, manager, Teck Building, Buffalo.
- March 9-16....—Boston Automobile Show, Mechanics Hall and Horticultural Hall, Boston Automobile Dealers' Association. Chester I. Campbell, manager, 5 Park Square, Boston.
- April 6-13.....—Montreal, Canada, Second International Automobile and Sportsman's Exhibition. R. M. Jaffray, manager, 309 W. Notre Dame Street.

Tours.

- Oct. 18.....—Economy Test, Chicago Automobile Trade Association and Chicago Motor Club.
- Oct. 20.....—Philadelphia, Pa., Cross Country Run of the Philadelphia Automobile Club.

Race Meets and Hill Climbs.

- Oct. 20.....—New York City, Empire City Track, Automobile Races.
- Nov. 6.....—Newark, N. J., Weequahic Park, Waverley, Election Day Race Meet of the New Jersey Automobile and Motor Club.
- Nov. 29.....—Riverside, Cal., Thanksgiving Day Hill Climb, Box Springs Grade Hill.
- Jan. 22-26.....—Ormond-Daytona (Florida) International Race Meet, Florida East Coast Automobile Association.



ACTOR CHARLES HOPPER IN HIS ROYAL TOURIST.

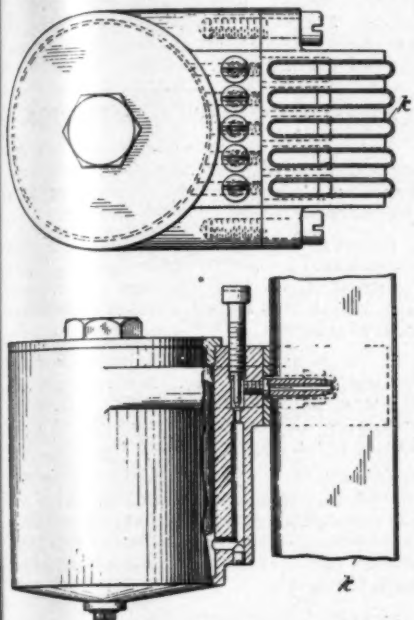
Taken in front of the entrance of Keith's Theater, at Cleveland, recently, while Mr. Hopper and his company were playing there.

Patents

Carbureter.

No. 832,184. J. F. Duryea and W. M. Remington, of Springfield, Mass.

This carbureter resembles that claimed in 832,183 in having a plurality of thin flat pipes *k* instead of one circular pipe. It dif-



DURYEY AND REMINGTON CARBURETER.

fers from the foregoing patent in having a plurality of spray nozzles, one for each pipe, and all supplied from the same float chamber. The throttle valve is placed close to the engine and is of a cylindrical balanced type which cuts off one after another of the pipes *k* by covering ports connected with them. In this invention, therefore, approximate uniformity of action is obtained by the gasoline spray as well as the air stream.

Power Regulation for Oil Engines.

No. 832,422. D. Roberts and C. James, of Grantham, England.

This is a device applied to the fuel pump of a kerosene or petroleum engine. The pump is operated by a lever from the air valve or otherwise, and a quadrant forming part of this lever connects the actuating link connected with the oil pump. This link is connected with the governor so it can be shifted on the quadrant to give the pump a longer or shorter stroke.

Self-Starting Device for Gas Engines.

No. 832,566. C. E. Wisner, of Detroit, Mich.

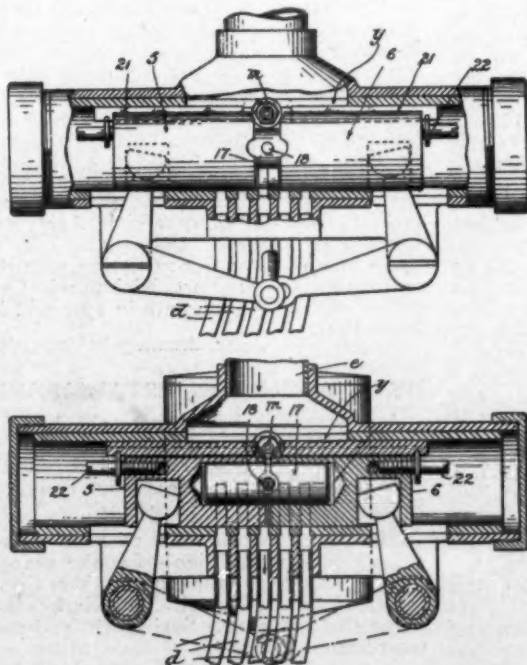
This is a starting device having a heavy coil spring and a plurality of ratchets, triggers, and other devices for causing the en-

gine to wind up the spring while it is running and leave it in position to actuate the flywheel when released by starting the engine.

Carbureter.

No. 832,183. J. F. Duryea and W. M. Remington, of Springfield, Mass.

The principle around which this carbureter is constructed is that of maintaining approximately constant velocity of air stream whether the throttle is opened or nearly closed, and to accomplish this by dividing the air stream and sending it through a number of thin flat pipes instead of a single circular pipe, these pipes being cut off successively by the throttle as the latter is closed, so that only a portion of them are performing service. In the drawings the air enters at *e* and after taking up the gasoline spray enters the flat pipes *d d*. The gasoline issues from the spray nozzle *m*, which is located centrally under the contracted and elongated extension *y* of the pipe *e*. Below this space *y* lies a horizontal cylindrical chamber closed at both ends, and containing the two plungers *5 6*, which move toward and from each other simultaneously and meet on the edge of one of the ports leading to the pipes *d*. The effect of this is to cause one port to open at a time, the ports being uncovered alternately by *5* and *6*, so that the change in port openings is continuous. The plungers *5 6* are partly hollow and slip over a stationary plug *17*, which is supported by the rod *18*. Its purpose is simply to break the air stream and prevent too direct a passage from *e* to *d d* when the plungers are close together. An addition which the inventors have found useful is the two strips *21*, which are connected to the plungers by the



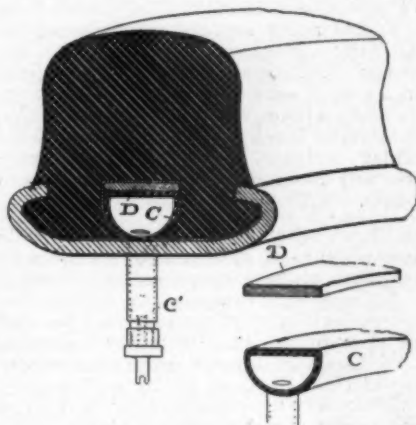
ANOTHER FORM OF DURYEY AND REMINGTON CARBURETER.

screws *22*, by means of which they may be adjusted a little toward or from the center. These strips fit loosely into grooves in the plungers and fill the circular space, and their function is to assist and direct the air stream around the gasoline nozzle when the plungers are close together.

Solid Rubber Tire.

No. 832,039. E. D. Carr, of Akron, O.

This invention covers a special means of quickly securing a solid rubber tire on a rim



CARR'S SOLID RUBBER TIRE.

of the ordinary clincher form. The base of the tire has a central groove of substantially the cross section shown, which contains an inelastic ring *D* and an air-tight rubber tube *C*, which is inflated by a pump through the valve *c'*. When this small rubber tube is deflated the base of the tire can be compressed laterally enough to remove it from the rim. The ring *D* acts to prevent the air pressure in *C* from forcing the tire off the rim.

NEWS AND TRADE MISCELLANY.

The J. S. Bretz Company, manufacturers of F. & S. annular ball bearings and Hartford universal joints, has removed its offices from New Britain, Conn., to 804 Times Building, New York City.

The Ashtabula Carriage Bow Company, Ashtabula, O., which has been manufacturing high-grade carriage bow sockets for the last twenty-five years, has in the last four years been developing a line of heavy sockets, both leather covered and japanned, especially for automobiles.

The Autocoil Company, of Jersey City, N. J., has again secured the contract for supplying ignition apparatus to the George N. Pierce Company, of Buffalo, for its 1907 cars. The order is a large one and includes coils for both four- and six-cylinder machines. In addition to the regular Autocoil equipment the Pierce cars will have a high-tension magneto system.

L. J. Wyckoff and Alonzo Somerville have purchased the Essex Automobile Company, at 79 Orange street, Newark, N. J., and will continue to handle the Jackson car in that territory. The firm will shortly remove to larger quarters. C. W. Oathout, former proprietor of the business, has engaged in the manufacture of automobile tops and covers on the top floor of the Orange street address.

A new departure at the factory of the H. H. Franklin Manufacturing Company, Syracuse, N. Y., is the manufacture of tops for automobiles. This has been made necessary by the steadily increasing demand for them as regular automobile equipment. A large space on the top floor of the Franklin factory is devoted to this branch, and within a few weeks tops can be turned out in large numbers. Only tops of high grade will be built and used as equipment.

The Atlas Automobile Company, of Pittsburgh, Pa., expects to enter the manufacturing trade for next season, making a runabout and touring car. The plant will be located in the new fireproof garage of the Atlas company, on College avenue, East End. The runabout will be of the four-cylinder type, 25-30 horsepower shaft drive, three speeds forward and reverse, selective type and shifting gear. The touring car will embrace the same essential details except as to seating capacity and power.

The Pedersen Manufacturing Company, 634 First avenue, New York City, states that it has come to the attention of the company that a car upon which had been expended in three months repairs costing over \$1,000, mostly on bearings, has cost practically nothing since a Pedersen lubricator was used. The device on the car depended upon check valves for its action and was rendered inactive for a period after the engine was started, owing to the fact that the ball checks would stick, owing to the gumming of the oil.

The first run of the new Krieger gasoline-electric car over American roads was successfully accomplished last week. This new importation was illustrated and described in last week's issue of THE AUTOMOBILE. Captain Alexander Bianchi, of Paris, who is introducing the car here, left New York with a party of friends and made the run to Boston in

12 hours 25 minutes running time without any mishaps. The highest speed reported, according to the Jones speedometer, was 73 miles per hour. The highest grade climbed registered by the scale of the hill climber was 18 degrees, near Spencer, Mass.

D. C. Lull, of the Electric Vehicle Company, who is one of the most successful road drivers in the East and has participated in the breaking of the Chicago-New York road record twice, recently drove from New York to Binghamton over the old route in a Columbia car and states that the roads through the lower Catskills, although by no means good, are considerably better than they used to be. This route was first exploited by the promoters of the New York-Pittsburgh run endurance in 1903. Of course this route must inevitably remain very hilly, but with a reasonable amount of ordinary improvements it would be far more desirable than any other route which can be chosen as a starter from New York City to the lake region.

One of the fastest runs ever made over the New York-Buffalo route was accomplished October 13 by W. B. Hurlburt, manager of the New York branch of the Packard Motor Car Company. Leaving New York at 5 A.M., in a Packard "Thirty" runabout, and accompanied by a mechanic, Mr. Hurlburt started up the hilly East Side road along the Hudson, westward through the Mohawk Valley, with its torn-up roads, to Utica, and thence to Syracuse. Rochester was reached a few minutes before 10 o'clock in the evening—401 miles in 17 hours, including stops for meals and gasoline. The net running time was 14 hours 45 minutes. The car used by Mr. Hurlburt was the same that has been driven back and forth between Detroit and New York several times by Manager Joy and Chief Engineer Huff, of the Packard company.

The Prest-O-Lite Company, of Indianapolis, Ind., has completed arrangements to install at once in Boston a new pumping station to take care of all New England recharges of Prest-O-Lite gas tanks. This territory will be taken care of by Manager Frank D. Stranahan, with offices at present at 541 Tremont street. Arrangements have also been made for a new pumping station at Harrison, N. J., and within thirty days the company will be able to deliver to New York City, state, and New Jersey recharges from the Harrison plant, which will be attached to the Commercial Acetylene Company's plant at that place. With these new stations in connection with the Indianapolis and Port Richmond, Cal., plants deliveries to agents in 1907 will be immediate.

NEW AGENCIES ESTABLISHED.

A new branch has been established for the sale of Michelin tires at 3804 Olive street, St. Louis, Mo., with H. L. Doyle as manager, by the Michelin Products Selling Company, of New York.

The Glide automobile will be represented in central Illinois for the season of 1907 by the Johnson-Hatcher Company, of Springfield, Ill., which has secured the agency for Springfield and surrounding territory.

The Kilgore Pneumatic Shock Eliminator Company, of Boston, has opened a branch

salesroom, and equipped a shop at 1773 Broadway, New York City. An experienced force of salesmen and mechanics is in charge to promptly look after customers' requirements.

Three additional cars will join the big Philadelphia automobile family before the first of November. They are the Mora Roadster, the agency for which was recently acquired by the Kelsey Motor Car Company, which handles the Maxwell at 204 North Broad street; the Aerocar, which will be represented by the Hump Motor Car Company, at 2534 North Broad street, and the Haynes, whose home is now being prepared at 220 North Broad street under the direction of Manager H. Hunter.

PERSONAL TRADE MENTION.

Leo Melounowski, well known as a designer of both European and American experience, has become connected with the Aerocar Company, of Detroit.

Harvey Firestone, president of the Firestone Tire and Rubber Company, has returned from his extensive European trip, which was a combination of business and pleasure.

E. D. Winans, of the Michelin Products Selling Company, Inc., has resigned his position as general manager. Mr. Winans is in ill health and will go to California for a much-needed rest.

Forrest E. Taylor, well known in the tire trade, especially in the Central West, has located at 2231 Broadway, New York City, where he will act as sales representative for several Western accessory manufacturers.

Charles Clifton, president of the A. L. A. M., sailed for Europe October 13, accompanied by Mrs. Clifton. A three months' ramble, with considerable automobiling mixed in, was the rest cure advised by Mr. Clifton's physician.

Edward W. Elverson, treasurer of the Michelin Products Selling Company, Inc., of 31-33 West Thirty-first street, New York, has taken control of the affairs of that company as general manager, succeeding E. D. Winans, resigned.

F. E. Muskovich has resigned the vice-presidency of the Frayer-Miller Motor Car Company, of New York City. He will devote his entire time in the future to advancing the sale of auto parts marketed by Brandenburg & Co., of New York, and will spend most of his time in the West.

L. C. Hopkins has taken the management of the New York agency of the St. Louis Car Company, builders of the American Mors. For the present Mr. Hopkins will hold forth at 66 West Forty-third street until larger quarters can be secured. He will be remembered as the manager of the New York Apperson branch.

It is with regret THE AUTOMOBILE records the death of Richard D. Alliger, Jr., a partner of the firm of Brandenburg Bros. & Alliger. Mr. Alliger was widely and favorably known to the trade, and his numerous friends will be shocked to receive the news. His death occurred after a protracted illness which several trips to the South did not alleviate. He died at his home, 104 Seymour street, Syracuse, N. Y., October 6. The services took place at his late residence at 8 o'clock, Tuesday, October 9, and were attended by many people prominent in the automobile industry.

INFORMATION FOR BUYERS.

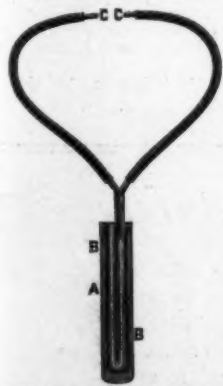
BOSTON TIRE TREADS.—The Boston Tire Tread Company, of 45 Stanhope street, Boston, has placed on the market a tire tread that embodies several features of novelty and should be found decidedly useful by automobilists. The Boston tread is sold at a very reasonable price and is especially suitable for applying to worn tires that



THE BOSTON TIRE TREAD.

would otherwise have to have new treads vulcanized on in the customary rather expensive way. There are holes pierced in the treads at regular intervals all round, just on the center line of the tread. When the tread is applied to the tire, the shoe is pierced with corresponding holes and the tread is secured to the shoe by means of lugs passing through the holes and holding against metal plates both inside and outside. The inner plates are separated from the inner tube by a heavy protective lining. The accompanying illustration gives a good idea of the general appearance of the Boston tread. Owing to the fact that there is no material change in dimensions at the center line of the tread, the fastenings are not subjected to anything but legitimate stresses.

PREST-O-LITE TESTER.—The Prest-o-Lite Company, of Indianapolis, Ind., having found that automobilists are frequently troubled by pipe-line leaks in their gas-lighting systems, and are often at a loss to account for the apparently excessive amount of gas consumed, has placed on the market a tester that will enable the automobilist to



PREST-O-LITE PIPE TESTER.

try his pipe lines for leaks. The illustration shows the apparatus, which is very simple. The glass tube is filled with water, when the tester is to be used, up to the point marked A, and the ends C C of the tubes connected to the gas pipes. The gas cocks are now turned on until the gas forces the water to the points marked B B, and then

turned off. If, now, there is no leakage, the water will remain stationary at the points B B, while leakage will be indicated by the more or less rapid return of the water to its original level. This tester would appear to be well worth the dollar it costs—in fact, the manufacturers state that the price is less than cost price, but that the testers pay for themselves by showing users of Prest-o-Lite tanks that the tanks are not at fault in many cases when they are blamed.

ACETYLENE GENERATOR.—An acetylene generator which is stated by the manufacturers to be entirely automatic in operation, regulating its action so that any number of lights from one to six can be burned without adjustment of the water feed, is manufactured by the E. T. Kimball Company, Motor Mart, Boston, Mass. The interior of the generator is shown in the accompanying illustration. It is of the submerged type, insuring cool gas, has no valve to become clogged, and there is no storage of gas. It operates on the siphon principle, and the gas is turned off or on by raising or lowering the carbide chamber, which is held in place by a tube extending upward above the top of the generator. A simple device serves to lock or unlock the



WESTBROOK ACETYLENE GENERATOR.

tube, which can be done instantly at any time. When the carbide chamber is submerged the generation of gas commences immediately, and when the chamber is raised out of the water the flow of gas ceases. If only a small amount of light is required the chamber may be partly raised, reducing the water pressure and economizing carbide. The Westbrook generator, as it is called, has no nuts or bolts, but can be taken apart almost instantly. It is made in two sizes, No. 1, with a capacity of one pound of carbide, and No. 2, holding two pounds.

FOLDING AUXILIARY SEATS.—In the tonneau of an ordinary touring car there is not a great deal of spare space, and though it may often be desired to carry an extra passenger or two, it is not practical to carry around bulky seats all the time for use only on such occasions. By using a compact folding seat, however, this difficulty is disposed of. The Racine Metal Chair Company, of Racine, Wis., manufactures a folding chair known as Freeman's auxiliary chair. This is made of a light, but very strong steel framework, with the seat of velvet carpeting and the back of plush. The entire chair is finished in black, the steel framework being enameled, and presents an attractive appearance. Two sizes are made. No. 1 is the adult size and is

16 inches high, 12 inches long, 10 inches wide and has a 12-inch back curved to give comfortable support. The weight is 51-2 pounds. No. 2 is the children's size and is 12 inches high, 10 inches long, 9 inches wide and has a 10-inch back. Apart from the dimensions No. 2 is exactly the same in every respect as No. 1. Weight, 5 pounds. When the No. 1 chair is folded it occupies a space 20 inches long, 11 1/2 inches wide and 2 inches thick. The backs are adjustable. An important point is that each chair is tested to a carrying capacity of 300 pounds before shipment.

BRIEF BUSINESS NOTES.

The Broadway Auto Exchange, 247-249 West Forty-seventh street, New York, last week sold ten second-hand cars to be used in Mexico for renting purposes, and forty-two cars represented the business of the week.

The Michelin Products Selling Company, Inc., 31-33 West Thirty-first street, New York City, of which Edward W. Elverson is the new general manager, has begun the publication of a monthly house organ bearing the title of *Pneus Michelin*. A copy for one year will be sent free to anyone making application, and the recipient will secure considerable valuable information from its newsy pages.

Blood Bros.' Automobile and Machine Company, at Kalamazoo, Mich., have changed their name to Blood Bros. Machine Company. This firm, when first organized, manufactured complete automobiles, but afterward developed a universal joint that proved to be well adapted to stand the hard usage of automobiles. These joints were soon adopted by many of the manufacturers of automobiles as a regular equipment, and the demand has now become so great that Blood Bros. have had to drop all other branches of their business and devote their entire time and energy to making these joints and steering gear, which they also manufacture. During the past twelve months they have constantly been adding machinery to their plant, until the capacity at the present time is about four times as much as it was a year ago.

NEW AUTO LUBRICANTS STORE.

The Havemeyer Oil Company have opened an up-town branch store at 1906 Broadway, between Sixty-third and Sixty-fourth streets, New York City, where a complete line of Havoline automobile oils and lubricants will be carried, and from where immediate deliveries can be made. It will be somewhat of a novelty to have a store devoted entirely to the sale of automobile lubricants, and it is generally believed that the move is a progressive one. The general subject of automobile lubrication is receiving so much attention just now from all classes of automobilists that the opening of a store in the heart of the automobile district, devoted exclusively to the display and sale of lubricants manufactured expressly to meet the needs of all classes of cars, cannot fail to be of great interest, as well as material benefit and assistance to all interested. The Havemeyer Oil Company is a large manufacturer of general lubricating oils and greases, and by putting itself directly in touch with the consumer a long step is taken toward simplifying, if not altogether eliminating, one of the vexatious problems that confront the automobilist.

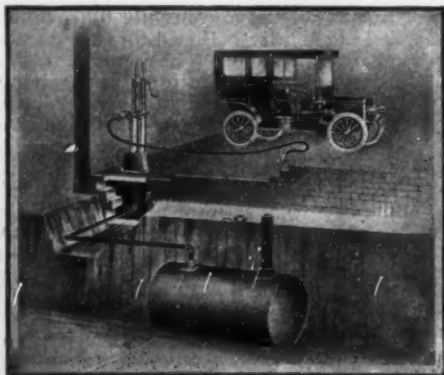
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